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# GLEANINGS

## IN BEE CULTURE

JOURNALS DEVOTED  
TO BEES  
AND HONEY  
AND HOME  
INTERESTS.

ILLUSTRATED  
SEMI-MONTHLY  
PUBLISHED BY A. I. ROOT.  
\$1.00 PER YEAR MEDINA OHIO

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No. 15.

### STRAY STRAWS

FROM DR. C. C. MILLER.

THAT APRON of A. C. N., p. 584, is good, but Emma prefers ticking. She tried the oilcloth, and couldn't stand the smell.

I FANCY I see Doolittle loading his gun when he reads that tariff article, p. 574. [We fancy we hear the doctor say, "Sick 'em, Doolittle."—ED.]

THE *American Bee Journal* has started a medical page, "Our Doctor's Hints, by F. L. Peiro, M. D." It's good, and dished up in excellent style.

IF IT WERE NOT for Ernest chuckling over it, I'd mention that I find the narrow ends of the latest Hoffman frames ever so much nicer to handle than the old broad ones.

THIS WEEK, for the first time, I saw in a normal colony two cells partly filled with pollen, and an egg laid on the pollen. Good colony, good queen, and plenty of empty cells. Didn't suppose such a thing possible.

THE *Bienen-Vater* reports a closely watched case in which a queen on her wedding-flight was absent from 3 to 6 o'clock. When her brood hatched they were half Italians, and the nearest Italians were  $4\frac{1}{2}$  miles away.

THAT HOLTERMANN FAMILY, p. 590, is nice. I'd just like to get hold of those little chicks. Now let's have the Root family. If you can't get them on one page, take three pages. [We'll see what the women-folks say.—ED.]

A LIBELOUS EDITORIAL in *A. B. J.* gives the whole of my wearing apparel as "hat, shirt, overalls, shoes." Notwithstanding the failure of the honey crop, I still luxuriate in stockings. [Perhaps Bro. York was thinking of Sockless Jerry.—ED.]

I WAS ANXIOUS about A. I. Root while he was riding a Flyer, for fear he'd break his neck.

Now that he has given up the Flyer and taken to a Racer I feel anxious about his morals. Racing and gambling are likely to go together. [Yes, he's been racing with good horses—on the road—and 54 years old at that.—ED.]

THE *Illustrierte Bienenzeitung* quotes an editorial in *American Bee Journal* about A B C, and adds, "The book contains every thing necessary in the science of bee culture, arranged alphabetically, and is splendidly illustrated throughout.

SOMNAMBULIST, in *Progressive*, thinks I'm arguing for loose bottoms on the sly, and quotes four Straws giving instructions that can be followed only with loose bottom-boards. Never thought of it in that light, honest Injun; I didn't, Sommy.

SWEET CLOVER stands up bravely through the terrific drouth. While grass is burned brown as in winter, sweet clover is bright and green, the bees working on it all day long, except in the morning, when perhaps they work on cucumbers.

WHAT AILS the season? It's always warmer and earlier at Medina than here; but July 11 you were having a tremendous yield from linden, and it was all out of bloom here four days earlier. Did they get through sooner because so few?

JULY 17 I was hunting around for a cool spot, with the thermometer at 103—just right for hatching chickens—and thinking I was having a pretty hot time of it. GLEANINGS came at noon; and when I read Mrs. Atchley's story on p. 581 I was glad I lived in a cool place.

"I AM LOOKING forward with pleasant anticipation to the time when my own basswood orchard of about 500 trees, planted with my own hands, will be yielding up the precious sweet to the bees."—Allen Pringle, in *Practical Bee-keeper*. So there's another man for me to envy besides A. I. Root.

SWEET CLOVER that was cut early, and sprung up again, seems more fully visited by the bees than the big stalks that were left un-

touched. Where people persist in cutting it down on the roadside, leaving all other weeds standing, it would be a good thing to get it cut before any sign of blossom.

FOR YEARS I've gone around during the honey season with the neck-band of my shirt black from my bee-veil. This year the lower edge of my veil is white for an inch or so, and I don't have to wear a dirty-looking shirt on Monday. [Do you mean to say that you tuck your veil down between the neck and shirt-band?—ED.]

PRESIDENT ABBOTT maintains that bees move eggs. To a queenless black colony without eggs he gave an outside comb of Italian eggs. In 3 or 4 days these eggs were gone, and a lot of eggs in center of hive, also a queen-cell from which an Italian queen issued. He asks, "Where did they come from, if bees never move eggs?"

"THE BEE-BUSINESS is one that is rather uncertain nowadays, when the sole dependence is white clover."—GLEANINGS, p. 589. I read that over carefully, read it slowly and sadly, but could think of no argument in reply. The saloon business is more certain, but some features of it I don't like, so I'll stick to the bees a while longer.

FRIEND ROOT, on p. 592 you think, and think wisely, that an office should be filled by the best man, not the man that works hardest for the place. The question is, which man do you vote for? When the day comes that good men vote for none but good men, we shall no longer have to blush for the rascally way they do things at Washington.

IN REPLY to a query in *A. B. J.*, opinion is divided between a  $\frac{1}{4}$ -inch space and some kind of cloth as a covering for sections. Many have changed from the cloth to the space. I think few have changed the other way. [The principal reason why cloths are used at all is because the bee-spaces are too large, and the old-fashioned thin top-bars render them almost a necessity. With thick top-bars and proper bee-spaces, or with proper bee-spaces over the sections, a cloth or quilt is worse than useless.—ED.]

I LAUGHED, Ernest, when I read what you say on p. 584. I used to lug around a tool-box with a variety of tools; but nowadays it has been laid aside, and I seldom have more than veil, smoker, and screwdriver. What do you do with the knife? Pry frames with it? And is it better than a screwdriver? [The knife-handle was used to pry between the frames, and is better than the screwdriver, because it is ever ready—in the pocket; but now the big nail spoken of elsewhere is better, and can be carried in the leadpencil pocket.—ED.]

"THE DIVISION-BOARD, as a rule, should be removed before any of the frames."—GLEANINGS, p. 590. Just what I believed and practiced

for years; but I'm getting to think it's easier to take the frame out first. [Use a ten-penny wire nail or spike, and then see if the division-board does not come out easier first. With the head of this very handy tool, catch hold of the top rail projecting over the division-board, and it will come easy. Afterward, use the other end of the nail to pry apart the frames. Try it and see how much better it is than a screwdriver. The nail is cheap; and if you lose it there are lots more for a few cents. Last week we blundered on to this handy tool, and now have abandoned the use of both screwdriver and knife.—ED.]



### APIARY OF H. LATHROP.

A CHEAP BEE-CELLAR.

By H. Lathrop.

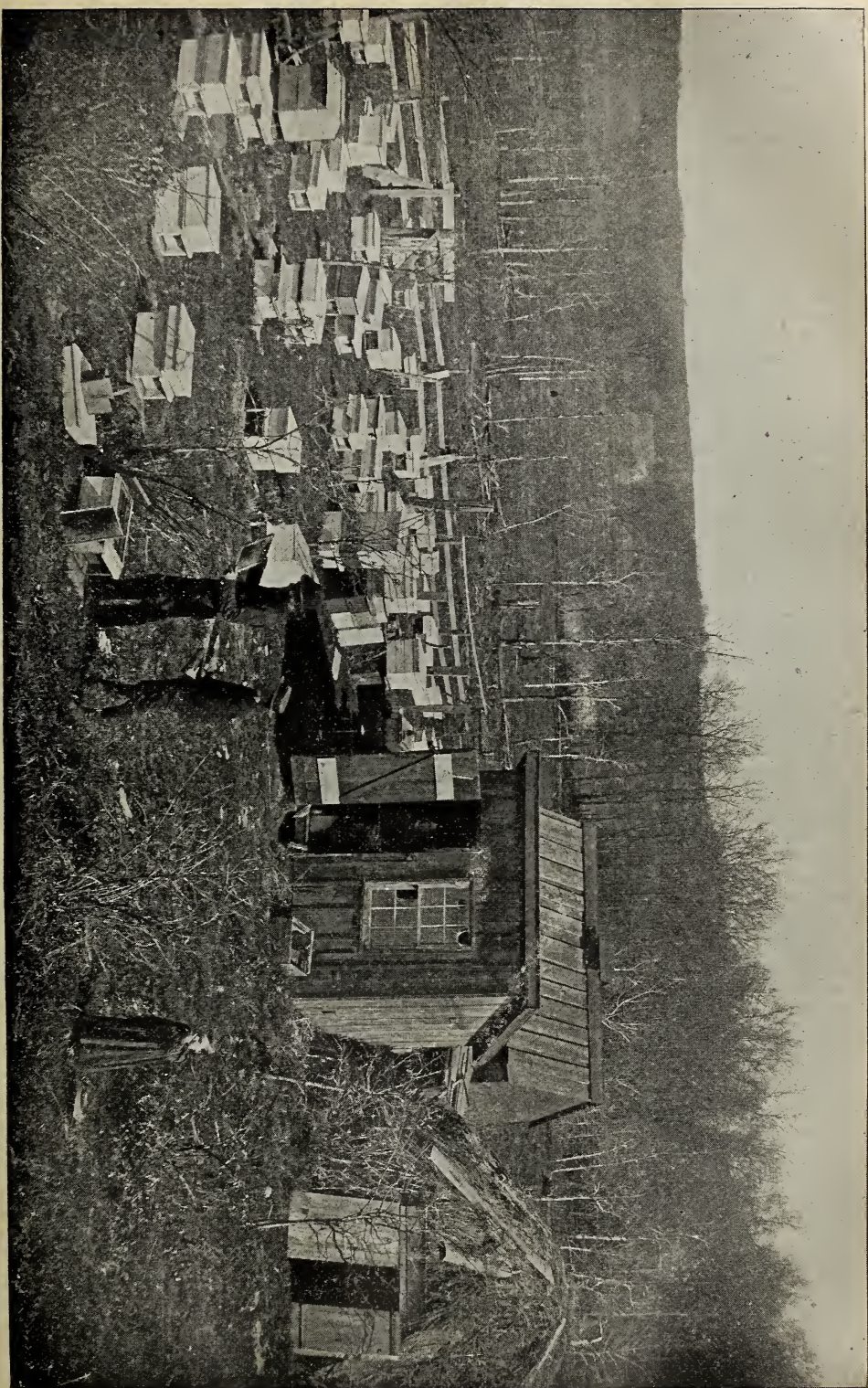
Mr. Root:—I send you by this mail two pictures showing a part of my apiary. They were both taken by Samuel Rockstead, of Albany, Wis., a master of this kind of work. One was taken in April, before the trees came out in leaf. This one shows my bee-cellar, which was described some years ago in GLEANINGS. It is very much like Doolittle's, except that only oak timbers and slabs are used in place of stone. In this picture may also be seen myself and family, consisting of wife and two children.

This apiary is, in some respects, better located than any other I have ever seen. It is in a valley, well sheltered; and early in the spring, when bees will fly out at the peril of life to procure water and pollen, they can get both just over the fence to the north, among the poplar-trees. It is very seldom that I have any thing like a case of spring dwindling, even when the bees come out of winter quarters in a weak condition. The trees seen in the May picture are young oaks which grew from sprouts, and were trimmed up each year. They furnish just shade enough.

Browntown, Wis., June 16.

[We selected for engraving, as you will see, a view showing the bee-cellar, which, taken in connection with the descriptive matter, will give a pretty fair idea of how to construct a cheap and serviceable bee-cellar. It might be well to call attention to the fact that Doolittle's original cellar was covered with slabs and dirt, the whole covered with boards so laid as to shed water and keep the dirt dry; but on account of the slabs supporting the dirt becoming rotten in time, he subsequently adopted stone flagging, and is using it to-day. We have no doubt that, for the locality of Mr. Lathrop, and many others in Wisconsin and Minnesota, a bee-cellar gives better results in wintering than double-walled packed hives on their sum-





APIARY AND BEE-CELLAR IN WISCONSIN.



mer stands. That being the case, it is important, even at this early date, to know how to construct a cellar that will give such results as that of Mr. Lathrop. The view of the apiary is interesting. It shows that the hives are evidently well painted, and in good repair. We presume that the little building beside the beehouse is the shop or honey-house.—ED.]

### HONEY TARIFFS.

#### INTERNATIONAL AMITY.

By Allen Pringle.

In the issue of GLEANINGS for April 1, pp. 264-6 and '7, Dr. Miller and Mr. P. H. Elwood both touch on the above subjects as between the United States and Canada. Dr. Miller says, "Canadian bee-keepers are looking with longing eyes in this direction"—that is, to the United States, as a honey market. Dr. Miller might be surprised to learn that, with the tariff-bars up high on both sides, much more United States honey is imported into Canada than Canadian honey into the United States. Dr. M. further says, that, while we Canadians are thus looking over there for a market, "England is at the same time kicking vigorously against our" (the United States) "sending any honey there." Isn't Dr. M. here making the mistake of calling a few British bee-keepers "England"? These few—with rather narrow views, it must be confessed—have been, it is true, making a clamor in the *British Bee Journal* to have United States honey shut out; but the *Journal* itself is making no such clamor, but has, on the contrary, properly rebuked the clamor; and the *Journal*, not the few dissatisfied ones, is certainly the proper representative of British bee-keepers, or "England," if you like.

The facetious doctor also asseverates that "that altitudinous Canuck, Pringle" (now, Mr. Editor, I shall call that Stray Straw blower of yours a short Dutch Yankee, just to match him), "worked hard to establish a market at the big show; and if his compatriots can't eat all the honey they can raise, I believe in giving them an open market on this side."

Now, that is good—very good. While I find myself differing with Dr. Miller every now and then, I agree with him most heartily on that point—not because I personally want or need the "open market" he is willing to give, as I can sell my honey at an excellent price at home and near home; but the principle of the thing is what I admire, and what I agree with, and what I have been advocating for years in Canada. The United States has a lot of knavish politicians and monopolists who are trying to persuade the people that the way to make them rich is to tax them—to tax them on what they sell and what they buy, on what they eat, drink, wear, and read. Canada has a lot of knavish politicians and monopolists who are

doing exactly the same thing; and these two precious lots of knaves (they are not fools) have built and kept up a high Chinese tariff wall on both sides of the international line. Both walls ought to be razed to the ground, with not a single stone left standing on another! And they *will* be leveled, as sure as time goes on; for a battle against the laws of nature is sure to lose in the end. And so long as these commercial barricades remain, in defiance of social as well as economic law, there can be nothing like international amity, in the true sense, between the two nations. Let them, therefore, be broken down; and the nation that first sets itself about the work will be leading in the van of human progress.

It has often been a matter of amazement to me how intelligent people can be so readily misled—how the party knave and demagogue can bamboozle the people on this tariff question, especially the farmer and other producers who suffer the most. They slip a penny into one of his pockets, and that he sees and keeps his eye on; while out of the other pocket they pick a pound, and that he never notices. They draw his particular attention to the first part of the trick—the penny performance—but knavishly cover up the latter maneuver—the pound robbery; and the poor fool goes away chuckling over his penny when his pound is gone! The average Yankee prides himself on his native shrewdness; the average Canuck prides himself on his native common sense; the tariff protectionist knave dupes them both.

Mr. P. H. Elwood, in some issue of GLEANINGS, as indicated above, refers to the proposal in the Wilson bill to reduce the duty on honey, and strongly deprecates such a movement toward tariff reduction. Mr. Elwood is evidently a high-tariff protectionist; and as he is, I believe, a producer, he must be set down as one of those dupes above referred to. I regret to have to make such a classification. But Mr. Elwood need not feel bad about it. He has a lot of highly respectable company in his economic fallacies. Many good and intelligent people, no doubt, honestly believe that the selfish sophistries of the monopolist and protectionist are gospel truths. Common-sense people find it hard to account for such a fact; but I account for it in the same way that I account for the anomaly of the learned English judges (aye, and New England people too) of a century or two ago who sat solemnly and sapiently in their places on the bench and condemned "witches" to be burned, and Quakers to be hanged. These judges had been educated that way; and as they honestly believed in witchcraft and persecution "in the name of God," they thought they were doing just right, not only in burning so-called witches, but in hanging Quakers too, than whom there were no more exemplary citizens. Some people still believe in witchcraft, though physical science

has chased the specter off the boards; some still believe in tariff protection, though political science has routed it too.

I take the position that the principle of extending special "protection" to a few citizens by the state (I care not whether these few citizens be manufacturers, bee-keepers, or what not), at the expense of the masses of the people, unjustly discriminating against them, is economically false and morally wrong, which no sophistry or specious and special pleading can make right.

One of my inalienable and natural rights as a citizen is the right to sell whatever useful thing I produce as the fruit of my labor, wherever and whenever I please, without let or hindrance, and to buy what I need wherever and of whomsoever I like, without let or hindrance—always paying my fair share of taxes to government to enable it to see that I, with every other citizen, am protected in the exercise of this and every other civil right. No government on earth has the right to lay hands on more of that product of mine than specified for the above purposes, either to put into its own coffers or into the coffers of its protégé, the specially favored citizen in the shape of a "protected" manufacturer, a "bloated monopolist," or any other man. If the above right to sell my products and buy my necessities is not my right, and every citizen's right, will some protectionist kindly tell us why not, and give his reasons? And if any government has the right to lay its hands on more of my goods than above indicated (and that is what is certainly done by tariff protection), will the same wiseacre tell us why—will some moral philosopher give us the wherefores?

Years ago this question was asked me; viz., "How is it that you are advocating a principle against your own interests as a honey-producer? for if the duty is taken off United States honey coming into Canada, they will flood our market and you can not then get as much for your product as you do now." The answer was then, and is now, just this: "If any foreign producer of the United States or any other country can bring his honey here, 100 or 1000 miles, paying freight, insurance, etc., and can afford to sell my neighbors and customers *pure* honey, as good in quality as mine, at a price lower than I am charging them, then I say, Well done; welcome, stranger! you are the people's friend if not mine—you are either an abler man than I am, or more honest, or perhaps both." And I immediately begin to suspect that I myself am either "a round peg in a square hole" or I am charging my customers more for my product than I ought to charge them. No matter which way it is, the consumer ought not to be imposed upon and called upon to suffer on account either of my incompetency or dishonesty. If he ought, will some *restrictionist* again tell us why? If I can not

sell at a living price at home as low as the aforesaid competitor, loaded, as he is, with disadvantages from which I am free, then I ought to get right out of the business and get into something else I am better fitted for.

There are 100 honey-consumers at least, to one honey-producer, with the same or a greater ratio elsewhere; and, I ask, should the hundred citizens be compelled to pay tribute to the one citizen, as they are compelled to do under the system of protection? And if they should, give us your reasons for that, by all means—good or bad, wise or otherwise, as the case may be. The logic will have a limp and the ethics a squint; but let us have it, or own up like men that you are wrong.

Mr. Elwood concludes his remarks about Canadian honey and the tariff as follows: "It may seem hard to our Canadian brethren to have a duty imposed upon their products; but *so long as they consent to have their foreign policy (war) dictated by rulers over the sea, secret enemies of our institutions*, they can hardly expect us to use our resources in such a way as to develop their strength." (*Italics not mine.*) This is hardly fair or fact. In the first place, it is a mistake to say or suppose that either the *people* of England or Canada are either "secret" or open enemies of the United States or her institutions. England, as a commercial nation, is certainly friendly to the United States—more so than to Canada; to hear which may surprise Mr. Elwood. Her capitalists have millions of money invested there. A portion of the aristocracy of England may be unfriendly to the United States; but I must remind Mr. Elwood that *they* are not England any more than the doctor's few bee-keepers. The people—not the aristocracy, nor even the throne—are the power in England to-day. The House of Commons is in fact, if not in form, supreme, and *they* represent the people. Goldwin Smith, himself a patriotic and loyal Englishman, says, in the last number of the *North American Review*, "The monarchy" (English) "has practically ceased to exist as a political force, and dwindled to a social apex." That is the true state of the case. The English people are England, and they are not enemies of the United States. Republicanism is coming in England surely, and not very slowly.

Nor are the Canadian people enemies of the United States or her institutions. A few rabid partisan politicians and newspapers may be unfriendly (with more bark than bite, however); but I must again remind our American friends that these parties are neither Canada nor the Canadian people. It looks hardly likely that the country is your enemy which has a million of her good citizens among you—not anarchists, fomenting disturbance, like your European foreign element, but law-abiding, trustworthy, capable, and industrious. No, we are not your enemies, but your friends, in the great brother-



hood of man in general, and the brotherhood of the Anglo-Saxon race in particular, cultivating the arts of peace and good will.

Selby, Ont., Can.

P. S.—With the exception of a passage or two, the above was written in April last, and sent to GLEANINGS; but for some reason it never reached that office. It has been re-written, because, when the loss was ascertained, the editor intimidated his desire to have the article, and I also felt that the nature of the subject would justify me in going through it again, especially as I am now here with a little leisure on my hands in Uncle Sam's dominions, having started for Mexico, but obliged to postpone the visit on account of the excessive heat. A. P.

New York, July 18.

### CALIFORNIA ECHOES.

By Rambler.

If there were a demand for comb honey only, there would probably be fewer bee-keepers, as it is so easy to extract, you know.

In some portions of California there are great areas of mustard. Those localities, I understand, are yielding a modicum of honey.

I recently passed through Saugus, and found an awful dry country. No wonder bee-keepers thereabouts have a discouraged tone to their writings.

To take skunk odor out of clothing, fumigate thoroughly with burnt coffee. That's the way Prof. Cook recommends. He has been there with his Sunday clothes on, and knows.

The efforts to hold an extra session of the State Association at San Francisco, during the mid-winter fair, failed, partly from the poor prospects for honey, and partly from the sudden withdrawal of low rates by the railroad.

It is a good thing, perhaps, for us to have an occasional off year. We shall have no anxiety over the putting of our product upon a market where there is no demand. See what Muth says in relation thereto in a recent issue of GLEANINGS.

We hear now and then prominent bee-keepers, who have heretofore worked their apiaries only for extracted honey, speaking strongly in favor of working for comb honey. Perhaps Harbison was right when he took such a stand against extracted honey.

Mexico would be an attractive field for the apiarist but for the duty on honey. Harbison entertained the idea of organizing a company to work the field so largely as to send honey by the shipload to foreign countries. The scheme is feasible, even at this day.

Mr. Searles, of Riverside, increases his colonies by division. A piece of burlap is placed between the extracting-super and brood-chamber of a strong colony. The super is provided

with an entrance; and when the young queen is hatched, the super is set upon a new stand.

The city fathers of Los Angeles are about to submit to the people several new city ordinances, among which there is one prohibiting the keeping of bees in the city limits. There is some stir among the bee-keepers, who reside in the city, against it; with what result will be seen later.

### HONEY-DEW HONEY.

A PURE-FOOD LAW; ANALYSIS OF HONEY-DEW HONEY.

By Prof. A. J. Cook.

As will be remembered, when I was up at the Arrowhead Springs apiary in April, Mr. Brodbeck, the proprietor, told me that he secured much late honey last fall from a peculiar parasitic vine which I at once recognized, as he showed it to me, to be "golden-thread," or dodder, a species of *Cuscuta*. This interesting threadlike plant takes root, like other plants, runs up, and twines about other plants for a support, then breaks its connection with the earth, and lives as a parasite upon its host. It is very common in Southern California, and is seen everywhere twining like a tangle of golden thread about herbs, shrubs, and even trees. When Mr. Brodbeck told me about his honey I thought at once of honey-dew, and even said to him that I supposed dodder bloomed earlier. In this last opinion I am sustained by facts—at least, I find dodder now in full bloom, both in the valleys and canyons. When Mr. Rees Powell, of Redlands, sent me the suspected honey which he said was produced in August and September, I at once thought of Mr. Brodbeck's honey, and sent at once and got a sample. The two samples were apparently identical. They are amber-colored, rather pleasant, and reminded me at once of honey-dew honey which I have often sampled in Michigan. Mr. Powell sold his honey to Mr. B. F. Brooks, of Riverside, Cal. Mr. Brooks sent it east, and it was condemned—or at least suspected—as an adulterated article. Mr. Powell asked me to make a full investigation, and asked for a report in GLEANINGS. This honey was produced near Banning, in Millard's Canyon. Up to July 26, 1893, the honey was light and excellent; then it changed, getting worse and worse. The bees kept at work on the honey-dew until Oct. 1. Mr. Powell says that most of the honey came from oak, but that many trees, including hemlock and pine, were visited by bees. I am inclined to think that Mr. Brodbeck's bees got their nectar from the host plants of the dodder, and not from the golden-thread itself. I am very sure that aphides were the source of the honey-dew in every case. It is a matter of much importance, and in future we must determine the truth and the whole truth in the matter.



I sent the honey to Dr. Wiley, of Washington, and have just received the following report :

*Serial No. 13,131.*

Polarization at 28°	-	-	-	-3 04
Glucose as dextrose,	-	-	-	66.52 %
Total solids,	-	-	-	84 37 %
Water,	-	-	-	15.63 %
Ash,	-	-	-	1.07 %

This analysis shows conclusively that this is no adulteration. The polarization shows that it could not have been adulterated with commercial glucose. Like No. 55 of the samples I sent to Washington in 1892, it will be seen that the ash is abnormally abundant. One of the important results of the previous analyses was the determination of a rule by which honey-dew honey may be distinguished from honey adulterated with glucose. Now that our chemists can surely detect adulteration, why should we not all move in a solid body for the passage of a United States law, something like that of the Paddock pure-food bill? and then with the Bee-keepers' Union as a mighty power to enforce law, we can surely stop the whole nefarious work of honey adulteration.

Claremont, Cal., June 13.

A. J. COOK.

[Yes, indeed, Prof. Cook, we ought to move in a solid body for the passage of a United States law—something like that of the Paddock pure-food bill. The Paddock bill would have gone through but for the moneyed influence, we fear, of those who are engaged in this adulterating business—in adulterating foods of all kinds, and putting a false label upon them.—Ed.]

## POLLENATION OF PEAR-FLOWERS.

### TESTIMONY FROM A FRUIT-PAPER.

I send by this mail a marked copy of *Smith's Fruit Farmer*, containing an article that I thought might be available for the symposium on "Bees and Fruit." Articles like these, coming from high authorities, who are not particularly interested in bees, I think will have much more weight than the same article if written by one interested from a bee-keeper's standpoint.

Bluffton, Mo., July 11.

S. E. MILLER.

[We have space for only the summary, which, as Mr. Miller says, coming from a source where there is certainly no partiality toward the bees, is more valuable.—Ed.]

The following conclusions are, it is thought, fully warranted from the evidence which has been given, and doubtless many who read this will recall observations in practical orcharding which give further support.

1. Many of the common varieties of pears require cross-pollination, being partially or wholly incapable of setting fruit when limited to their own pollen.

2. Some varieties are capable of self-fertilization.

3. Cross-pollination is not accomplished by applying pollen from another tree of the same grafted variety, but is secured by using pollen from one tree of a distinct horticultural variety; i. e., which has grown from a distinct seed. Pollen from another tree of the same variety is no better than from

the same tree. This failure to fruit is due to the sterility of the pollen and not to mechanical causes.

4. The impotency of the pollen is not due to any deficiency of its own, but to the lack of affinity of the pollen and ovules of the same variety.

5. The pollen of two varieties may be absolutely self-sterile, and at the same time perfectly cross-fertile.

6. The state of nutrition of the tree, and its general environment, affect its ability to set fruit either with its own pollen or with that of another tree.

7. Bees and other insects are the agents for the transportation of pollen.

8. Bad weather during flowering time has a decidedly injurious influence on fruitage by keeping away insect visitors, and also by affecting the fecundation of the flowers; conversely, fine weather favors cross-fertilization and the setting of fruit.

9. Pears produced by self-fertilization are very uniform in shape. They differ from crosses, not only in size and shape, but also, in some cases, in time of maturity and in flavor.

10. Among the crosses the differences were slight or variable, so that their variations are not to be ascribed with certainty to the differences in pollen.

11. Self-fecundated pears are deficient in seed, usually having only aborted seeds, while the crosses are well supplied with sound seeds.

12. Even with those varieties which are capable of self-fecundation, the pollen of another variety is prepotent; and unless the entrance of the foreign pollen be prevented, the greater number of fruits will be affected by it, as shown by the study of Buffum pears.

13. The normal typical fruits, and, in most cases, the largest and finest specimens, either of the self-sterile or self-fertile sorts, are crosses.

### PRACTICAL CONCLUSIONS.

1. Plant mixed orchards, or at least avoid planting solid blocks of one variety. It is not desirable to have more than three or four rows of one variety together, unless experience has shown it to be perfectly self-fertile.

2. Where large blocks of one variety which blossomed well have failed to fruit for a series of years, without any apparent reason, it is exceedingly probable that the failure is due to the lack of cross-pollination. The remedy is, to graft in other varieties and supply foreign pollen.

3. Be sure that there are sufficient bees in the neighborhood, or within two or three miles, to properly visit the blossoms. When feasible, endeavor to favor insects' visits to the blossoms by selecting sheltered situations or by planting wind-breaks.

## BEES MOVING EGGS — CARNI-ITALIANS.

### AN INCIDENT SHOWING THAT BEES DO MOVE EGGS.

By Emerson T. Abbott.

Willie Atchley has a long article on this subject in *GLEANINGS*, in which he claims that bees never move eggs. The editor says he would like to hear from the queen-breeders, especially Doolittle.

Now, I am not a queen-breeder, neither is my name Doolittle; but I think I have positive

proof that bees *have moved eggs*. I am not prepared to say that they make a business of it; but the presumption is, that what they have done *once* they can and will do again.

Several years ago in Dutchess County, N. Y., I obtained a lot of black bees in the fall from farmers who wanted the honey, but intended to kill the bees. I put these bees on foundation, and fed them enough sugar syrup to take them through the winter. As they were all black bees, I introduced Italian queens as soon as I could. The black queen of one of these colonies was killed in some way in making the transfer; and, as soon as they began to draw out the foundation, I saw that they had no queen, and were building queen-cells. There was not an egg of any kind to be found in the hive.

Happening about that time to be in the apiary of a near neighbor who had Italians, I saw one of his weak colonies come out of the hive and leave for the woods. I went to the hive and found a number of small, white, new combs, but no honey. On examining these combs closely, I found that two or three of them were full of eggs. To try an experiment I took two of these combs home and put them in the outside frames of the hive that contained the bees which had neither queen, brood, nor eggs.

In three or four days I took the combs out to examine them, and saw that every egg was removed from the cells. On further examination I found a lot of eggs in the center of the hive, and a cluster of bees around them. I also found a queen-cell with a larva in it. This was a new experience to me, and I concluded I must have overlooked the black queen, and she had now begun to lay; but I could not account for the disappearance of the eggs which I had put in the hive. There was no way to solve the problem but to await developments, and I did so.

To make a long story short, in due time the bees had an Italian queen, and every one of the remaining eggs hatched an Italian bee. Where did they come from, if bees never move eggs?

#### CARNIOLAN HYBRID BEES.

In the same number of *GLEANINGS*, the editor, in speaking of Carniolans crossed with Italians, says:

"Possibly a cross would be desirable; but how are we to distinguish them from ordinary hybrids?"

In reply to this I would say they can be distinguished in the same way that we distinguish black bees from Italians. The progeny of a Carniolan queen mated with an Italian drone does not resemble the bee produced by a cross of the Italian with the blacks, any more than a black bee does an Italian.

In 1886 the writer published a little book in which he said:

"A Carniolan queen mated with an Italian

drone produces a very fine and desirable bee. We have a number of such colonies that are very fine workers, and easy to manipulate—not quite so gentle, perhaps, as the pure-bred; but a single puff of smoke sends them down on the combs, where they will remain quiet."

More: I want to say that, by breeding out the silver-gray color, in a few generations we should have a bee which would show no trace of the gray blood which is found in the Carniolans. I have seen but one Carniolan queen whose progeny did not show yellow bands, and I have seen a great many Carniolan queens which came direct from Carniola, through Mr. Benton. I want to say further, that pure Carniolan bees bear no resemblance to the blacks. —*American Bee Journal*.

[The incident that you have related shows indisputably that bees may move eggs from one comb to another, at least. It seems to us that other facts equally conclusive have been presented; but at the time Willie Atchley's article was published we were not able to turn to them. Regarding crosses of Carniolans and Italians, you say that they may be easily distinguished from the common crosses, but you do not say *how*. We have never been able to distinguish any difference in the markings; but perhaps if we had had more experience in raising Carniolans we should be able to do so. But what of the average beginner?

If there is any yellow in the original Carniolans it must be due to the Italian blood some way brought in across the Alps. From what you say above, we do not presume that you take the ground with Mr. Alley that the Carniolans were the original yellow race. The position might be tenable provided these bees as they come from their native climate were almost entirely yellow, with an occasional bee that shows a tendency to black; but the fact is, the very opposite is true.—*En.*]

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#### RAMBLE 113.

##### ON THE THOUSAND-MILE JOURNEY.

*By Rambler.*

Among the various benefits derived from an off season in honey production is the desire to turn the attention to other pursuits. A season with honey production leaves several months in which the bee-keeper can be profitably employed at something else; but with none coming in, these months are increased in number; and the bee-keeper, unless a very idle man, must needs look around for something either pleasurable or profitable to do. The Mexican sets a very good example of sitting down and waiting for something to turn up. The bee-keeper does not follow his example, but, as a general thing, hustles around in his endeavor to "turn up" something.

Fruit-raising, or the buying and drying of it, is the readiest avenue to enter; but in this, as well as in the gathering, there are many hands of various degrees, from the Chinaman to the college-bred youth, and wages are not now booming on this coast; so the mind naturally





READY TO START.

turns to other avenues. The "Industrial Army" has taken several hundred laborers from our State; but bee-keepers do not swarm out in that way, even if they are this year accustomed to see starvation swarms.

Just now the desert has an attraction for the adventurous; and the search for the yellow metal is entered into with zest by some of our well-known bee-keepers. Mr. Segars, an old-time bee-keeper, is interested in this line; and Samuel Ferguson has a share in the Red Rock gold-mine, and does the teaming for the company. From late reports from the mining region,

the gold business is on a boom—a nugget weighing 22 ounces having been found.

Mr. George Ferguson and his family are all away to the San Bernardino Mountains, working another gold-mine. So it turns out with bee-keepers this year. The little or much feeding necessary does not hold the bee-keeper long, and he is away.

With dreary prospects before us, neighbor Wilder and I discussed the situation in its various aspects. The fruit-business seemed altogether too tame and domestic-like; the gold-hunting somewhat uncertain and full of hard-



AT REST IN CAMP.



ship, as followed by the old prospectors; then we could see—or, rather, imagined we saw—in the dim distance, several *Eugenias* poking their sharp noses over the Rocky Mountains toward us; and the prospect of being treed again led one of us, at least, to entertain any desperate effort to elude such happenings. We finally settled upon the plan outlined in the last ramble—that of making a grand panoramic, photographic, and camping tour of the State. The idea entertained grew upon us. Our talks by day and dreams by night were in relation to outfits, etc. Of all States in our great country, California presents the most charming aspect to the camper. From May till September we fear no rains; the ground is dry, and there are no fears of rheumatic pains after a night's bivouac upon it. There is but little danger from vicious men or animals, for life is as secure here as in our most favored States. The camper can live as cheaply on the road as at home; and, having means to make the tour profitable, let's away and enjoy ourselves.

Mr. Wilder had a pony, Keno, which had supplanted Vixen, and, possessing a far more tractable temper, was the more desirable horse—less circus and more business. After several days' search, and a few nightmares over the subject, and some danger of getting horse on the brain, we found a pony which matched Keno in size, shape, and gait, but was off on color and name. We, however, made the black match the bay; but the name Jack, applied to a horse of the female gender, was immediately changed to *Reina*\* (Spanish for *queen*); and when *Reina* and Keno were introduced to each other they became as attached to each other as two kittens, and the incident augured well for the continuation of our efforts.

Our search for a proper wagon to carry our equipments was an arduous one, but was finally crowned with success. Wishing to put on a close top in which to stow our goods, and which could be used as a dark-room for working up photographs, we secured the use of neighbor Clark's shop, on condition that we were to clean up his shop for the use of it. We made a thorough cleaning of it, so far as bolts, screws, nails, etc., were concerned, but left any amount of shavings and litter. It seemed that our understanding in relation to cleaning a shop was different from our neighbor's; no great harm, however, came from it.

Our wagon, when finished, contained the most compact and complete camping-outfit very often found. Folding cots, folding chairs, folding tent; my photographic outfit; Mr. Wilder's bird outfit for taxidermy; our guns and fishing-tackle. Although guns are good at long range, we expect to bring down more game with the camera, and give the readers of GLEANINGS the benefit to a certain degree.

On the 7th of June, every thing being in its proper place in the wagon, I pulled a string attached to the shutter of the camera, and the snap shot thus obtained shows us just ready to depart upon the long journey—our objective point San Francisco, over 500 miles away.

Our first afternoon drive was to Claremont, 22 miles. Here we called upon Prof. Cook. We found him as enthusiastic as ever over this wonderful country, and his interest in bee culture is unabated. Prof. C. has a few swarms of bees close to his residence, and was studying a new bee-disease that is quite prevalent in and about Ontario. Mr. Herron, the San Bernardino foul-brood inspector, was also giving much attention to it. The dead larvæ, instead of having the black and ropy appearance of foul brood, retains its shape, but in a shrunken form, grayish in color, and of a watery consistency. It is probably a disease peculiar to the peculiar season, and not of a dangerous character, and may be akin to bee-paralysis, which is so prevalent in this locality. It is hoped that the investigators will strike upon a speedy remedy.

Our journey next day led us through a beautiful fruit-country. The foot-hills were sure to have their apiaries. At Duarte we found one of these bee-keepers, Mr. W. W. Bliss. We climbed a considerable hill to reach his residence, and found that the little mesa, upon which his house stood, had a splendid outlook over the valley, with its great variety of fruit-orchards. The fruit interests have occupied Mr. Bliss's attention to such an extent that bee-keeping has fallen into the background, and he now has but one colony of bees. He was, however, busy in the interests of bee-keepers, and was making foundation. We immediately wondered who could be getting honey this dry year, and our curiosity was gratified by learning that the alfalfa fields of Bakersfield, and places further north, were giving some honey. Mr. Bliss is a mechanical genius, and his work-building is a genuine curiosity shop—bee-supply business, photography, electricity, and various other things. In the manufacture of foundation Mr. Bliss believes in keeping his wax hot a long time, that all impurities may settle; also, when running foundation, it is handy to have the wax in a melted state in the morning. For these ends a furnace is employed in which a subdued fire is held all night; but I believe the fire refused to be subdued, or broke out in a new spot, one night. The wax boiled over, and there came near being a conflagration. These uncertain moods of the fired Mr. B. to connect his waxworks electrically with a bell on his bedpost. An undue rise in the temperature of the wax in the shop rang the bell, and a calamity was averted. The bell was also connected in the same way with an incubator; and if a chicken became uncomfortably hot or cold, the

\* Pronounced ray-ee-nah.



bell rang. We saw a very healthy youngster around the place, and observed that, though electricity may be good to control melted bees-wax and hatching chickens, the youngster was evidently brought up according to the good old way—by hand. Mr. Bliss is quite an expert with the camera, and had some fine views on hand.

Our call was not a long one, and we were again on the move. That night we camped pleasantly upon Baldwin Avenue, among the pepper and eucalyptus trees. This large ranch is owned by "Lucky Baldwin." Upon this ranch, in Los Angeles Co., have been bred some of the horses that have beaten the world's records, one of them recently winning the Derby in England. To show you how comfortably we travel in this country, I give you a glimpse of our first camp, which is a type of all the rest.

RAMBLER.

### FASTENING FOUNDATION TO THE BOTTOM-BAR.

HOW TO PUT IT IN SO AS TO FILL OUT EVEN TO THE END-BARS AND BOTTOM-BAR, AND YET NOT SO AS TO SAG.

By Dr. C. C. Miller.

Having a lot of new frames to be filled I was quite anxious that they should be built solid to the frame on all four sides, without any space between comb and top-bar, bottom-bar, or end-bar. Of course, there is no trouble about having all right at top-bar, and very little at end-bars. But as a rule there will be a space between the comb and the bottom-bar, such space varying from  $\frac{3}{8}$  to  $\frac{1}{2}$  inch.

There is more than one objection to this space. It is any thing but pleasant, when looking for a queen, to have her dodge back and forth between comb and bottom-bar. The space is in the way when it comes to shaking or brushing bees off the comb. The comb is more solid in the frame if built down solid to the bottom-bar. In changing from  $\frac{3}{8}$  to  $\frac{1}{2}$  in the thickness of the top-bar we have lost half an inch in the depth of our comb; and if we get the comb built down solid we regain that half-inch. And I know of no advantage whatever in having a space over the bottom-bar, however earnest the bees may be in trying to secure it.

If the foundation comes so close to the wood that a bee can not crawl through, whether it be at the side or the bottom, I think the bees will generally join it to the wood. So all that is necessary is to have the foundation come within  $\frac{1}{8}$  inch or less of the wood, and the bees will leave no space. If foundation would not sag, nothing further would be needed.

But foundation does sag. If we can know just how much it will sag, can we not provide accordingly? Suppose it sags  $\frac{1}{4}$  inch, and we let the foundation come within  $\frac{1}{4}$  inch of the

bottom-bar, how's that? Well, that's all right if we could only get the co-operation of the bees. But here's what they'll do. If  $\frac{1}{4}$  inch space is left they prefer to have it more, and commence gnawing away the foundation; and as fast as it sags they keep it gnawed away so as to leave a space of nearly half an inch.

Not long ago I suggested in GLEANINGS that it might work to put a separate strip in the bottom of the frame, much in the same way that a bottom starter is put in a section. So I thought I would try it.

The frames were wired horizontally, and the bottom wire came about an inch from the bottom-bar. So I cut a strip of foundation about  $1\frac{1}{2}$  in. wide, fastened it on the bottom wire, then filled out the frame with a sheet of foundation that came from the top-bar down to within  $\frac{1}{8}$  inch of the bottom strip. Fastening the wire in the bottom strip was an awkward performance, as the strip seemed to want to wiggle about and do any thing but lie still in the right place. But Emma was experienced in fastening wires in foundation, and was equal to the occasion.

Then I put the frame in the brood-nest of a full colony to see what they would do with it; or, rather, I put in several, each frame between two frames of brood. While we are waiting to see what the bees will do with it, I'll tell you of another thing I was trying at the same time.

I thought I could improve on the way the foundation was fastened to the top-bar, so I had a saw-kerf made in each top-bar. The top-bars were  $1\frac{1}{2}$  wide and  $\frac{3}{8}$  thick. The saw-kerf was  $\frac{1}{8}$  wide and  $\frac{1}{4}$  inch deep. The idea is very old; but in all cases that I had known, the kerf was much less than  $\frac{1}{8}$ , and it was not easy to get the foundation in; but  $\frac{1}{8}$  would allow the foundation to go in and to go in easily. Another difference was in making a deeper saw-kerf, a full quarter-inch deep. My idea was, that, by having it so deep, there would be no need of fastening—just trust to the wires to hold up the foundation till the bees fastened it; and if it did sag down a little it would still stay in the saw-kerf, for it would have to sink  $\frac{1}{4}$  inch before it could get out.

At the end of 24 hours I went to see what progress had been made. The bees had fastened the lower piece of foundation to the bottom-bar beautifully, and had also fulfilled my expectations by fastening to the top-bar. I judged from appearance that they had fastened it to the top-bar without its coming out of place in the least. They had also made a fine job of uniting together the upper and the lower strip.

The only fault I could see was that, in some cases, they had not finished uniting the two parts of foundation at the outer ends. Indeed, instead of uniting they had gnawed the foundation so as to make the space between the two parts about half an inch instead of the eighth I had left. I think this would not have occurred

if honey had been yielding; but this is a year of dead failure here, and at such times bees are likely to gnaw where they should not. I confidently expect such places to be filled up when the bees have something to do.

Evidently, however, there was a difference between the middle and the ends of the foundation. Might I not take advantage of that? Didn't it sag more in the middle than at the ends? So I concluded to try having the foundation continuous for about an inch at each end. By doing this I could also get rid of the wiggly performance of fastening the bottom strip on the wire separately. The frame was 8 inches deep in the clear, and, adding to that the depth of the saw-kerf, allowed foundation to be put in that was  $8\frac{1}{4}$  inches deep. I made it  $\frac{1}{8}$  inch less than that— $8\frac{3}{8}$ . The foundation was cut about  $\frac{1}{8}$  inch shorter than the inside length of the frame. The wires were imbedded, and then the frame was laid on a board a little smaller than the inside of the frame, and a strip of foundation about  $\frac{1}{8}$  inch wide was cut out about half an inch *above* the bottom wire, cutting to about an inch of each end. This, of course, left the foundation whole without any space for an inch at each end.

After submitting this to the bees it turned out an entire success. The work was so perfect, that, without close examination, you would say that a single sheet had been put in without any cutting, true as a board, and completely fastened on all four sides. I had accomplished all I desired, having no space over the bottom-bar, and at the same time no bagging-out of the foundation, and it was done with really no extra amount of work, for cutting out the strip took no more time—yes, possibly it took a little more time than fastening the foundation to the top-bar in the usual manner.

The next question was, whether it would act in the same manner if a swarm were hived upon a full set of such frames. I had no swarm to try, but I did what amounted to about the same thing. I went to one of my strongest colonies, set the hive off its stand, put on the stand a hive having at one side a single frame of brood, and filled out with frames of foundation, then brushed into the new hive all the bees, and put on a feeder.

I rather expected the weight of the bees would pull the foundation down entirely out of the saw-kerf (the thermometer was in the nineties), so I didn't wait any 24 hours, but made an inspection in two or three hours. My expectations were realized, at least as to the three frames next the brood. The foundation was pulled entirely out of the kerf, and was hanging over in a most dejected manner.

It was evident that, in some way, the foundation must be fastened to the top-bar. So I replaced the three frames with three having the foundation fastened to the top-bar, by

means of the German way, with a beeswax candle. The instructions are, to make a candle with a very slender wick, the candle two inches in diameter, and of uniform dimensions. I was in a hurry, and didn't go through any such formality. I picked up a string that had come from Medina around some frame stuff, took a single strand of it, and squeezed around it in no regular order some of the little strips of foundation I had cut from the sheets. Then I lighted my candle, held it on one side, and, as the drops of melted wax fell from it, I let them fall here and there along the line where the foundation touched the top-bar on one side. It was very quickly and easily done, and I like the plan very much. This time success was achieved. The bees didn't pull the foundation out of the kerf, but finished fastening it in.

The foundation was about 8 feet to the pound, and the frame next the brood sagged more than the eighth of an inch. Indeed, I tried a frame with a space of  $\frac{1}{4}$  inch, and that was not enough. But instead of bulging out, as it would if the frame were filled entirely full in the ordinary manner, there is simply a buckling of the foundation upon itself—objectionable, of course, but by no means so bad as the bulging.

I think whoever wants combs built solid upon the bottom-bar will like the plan I have given. Just how much space it is best to leave between the two parts of the foundation depends on circumstances, much more being allowed where a swarm is thrown upon it than where a single frame is put in an established colony; and in the latter case there is no need to fasten the foundation in the saw-kerf. Of course, the manner of attaching the foundation to the top-bar is a matter entirely independent of the lower part of the frame, and I suppose the plan I have used to get comb built down to the bottom-bar can be used, no matter how the top-bar attachment may be; but I earnestly commend to the powers that be, at Medina, to try one or more frames with the  $\frac{3}{8} \times \frac{1}{4}$  saw-kerf; also the plan of building to bottom-bar, and report how it succeeds in that *locality*.

Marengo, Ill.

[Lest some of our readers, in going over the above, may not clearly understand, as we did not at first, the doctor's plan, we might add that he cuts his foundation (by his last-mentioned plan) the full size of the inside of the frame, and deeper by the depth of a saw-kerf in the top-bar. Of course, such foundation would sag when put on horizontal wires; but to prevent this he cuts out a strip of wax from  $\frac{1}{4}$  to  $\frac{1}{2}$  in. wide,  $1\frac{1}{2}$  in. above the bottom-bar up to within an inch of each end and parallel with the bottom wire. In other words, to make up for what the foundation would sag, instead of cutting the foundation a little short, so as to leave  $\frac{1}{4}$  or  $\frac{1}{2}$  inch space in the bottom of the foundation and the bottom-bar, the doctor takes out this space *right in the foundation itself*, just above the bottom wire, leaving an inch space at each end, however, not cut out.



Since receiving the article, the following has come to hand, which will explain itself:

You may say that I have tried cutting out a strip half an inch wide, and the bees made a perfect job of it. One thing I might have mentioned: There is less stretching with my plan, because there is less to stretch. You see, if the lower strip is  $1\frac{1}{2}$  inches, then a half-inch space, it leaves the sheet only 6 inches deep. That's quite an item.

C. C. MILLER.

We have thought of this matter a good deal; but at this time we do not really know whether we take kindly to the plan or not. We have not yet had a chance to try it, but will put a few frames in the apiary, as soon as possible, on the doctor's plan. We might say, in passing, that we have had more trouble with foundation, on horizontal wires, buckling *this year* than ever; in fact, we do not remember that the medium-brood weight ever buckled before on horizontal wires where at least four such wires were strung horizontally across the frame; but this year, on all the frames, the foundation showed a tendency to bulge a little between the wires. We think this was largely owing to the exceedingly hot weather, and to the fact that we did not allow, in consideration of this hot weather, sufficient room between the bottom-bar and the bottom edge of the foundation. We allowed, as usual, from  $\frac{1}{4}$  to  $\frac{3}{8}$ ; and, contrary to our previous experiences, the foundation sagged clear to the bottom-bar. Had we allowed the full half-inch, as Dr. Miller suggests in his note just above, we think there would have been no trouble. On the other hand, when we allow  $\frac{1}{2}$  inch for *ordinary* seasons, the bees will leave too great a space between the bottom-bar and comb. Accordingly we have tried to compromise matters by cutting the foundation just as wide as possible, and yet not have it in danger of striking the bottom-bar and buckling.

Perhaps another thing accounts partially for the buckling. There seems to be a demand for a softer grade of foundation; and we have, therefore, made it softer by dipping the sheets thinner, which, of course, would make less pressure of the wax that went between the rolls. We have also, this year, taken pains to refine the wax to a greater degree than ever. In fact, all our brood foundation is made of the same wax from which the surplus is made. The extra-hot summer, and the softer wax, probably accounted for the buckling.

Now in regard to the doctor's plan. We think it quite probable that the buckling can be stopped, and that combs will be built clear to the bottom-bar; but will there not be an irregular line of cells where the foundation was cut out? and, after all, does it not entail a great deal of work?

If it were not for the extra work of driving in staples, and the bending-up of the bottom-bar, to say nothing of threading the wire through extra holes, we should prefer the perpendicular plan of wiring, without diagonal wires or intersections. On perpendicular wires the foundation may be put in filled out clear to the end-bars and clear to the bottom-bar, because perpendicular wires, of course, prevent the wax from sagging. It is also possible to use on such wires a lighter weight of wax. Notwithstanding all this, the disadvantages of perpendicular wiring, in our estimation, are so great that the horizontal wires are to be preferred; and after all it is seldom that there comes a season in our locality when foundation on the last named shows a tendency to buckle. Perhaps, taking it all in all, Dr. Miller's plan is the easiest solution of the whole trouble. Later

experiments, not only by ourselves but others, will decide the matter.

We have tried putting foundation up into grooves, as you describe, said grooves being wider and deeper; but we did not like it, principally on account of the difficulty of fastening the wax; for we knew it would at times sag out and flop over. We have not yet tried the candle; but it strikes us that we should prefer the Hambaugh roller, with an even flat top-bar—the plan that is used not only by Mr. Hambaugh but by the Dadants and others as well, with great satisfaction. A full description of this method of fastening foundation to the top-bars is given in the new Langstroth Revised, page 375.—Ed.]

## DRONE COMB IN SECTIONS.

PREFERENCE OF THE BEES FOR IT, ETC.

By Harry L. Dwight.

Can you tell me why the manufacturers of foundation make only worker size for the sections? It is a well-known fact, that the bees prefer the drone size for thin surplus, and will build drone comb if it is left to them. I have made a few experiments on this line, and find that, when worker-size foundation is used,  $\frac{1}{4}$  or  $1\frac{1}{2} \times 4$  in., the bees will build down and change to drone, 87 out of 100; when sheets of foundation  $2\frac{1}{2} \times 4$  are used they will change to drone 72 out of 100; when just a starter is used,  $1 \times 4$ , they will change 91 out of 100.

Two years ago I bought 2 lbs. of drone-size foundation, and used it in two hives, putting a section containing drone and one containing worker size alternately, using full sheets of each. I found the bees at work in the sections containing drone, and they were filled and capped over four to five days before the sections containing worker size. It seems to me that this is quite an important point. Hereafter I intend to use drone size in my sections entirely, provided I can get it. Do you know where I can find it?

### ADULTERATION, TO CHECK.

I have an idea by which the adulterating of honey can in a measure be checked. This plan is not original, as a similar method is used by cotton-packers. It is this: Let the Bee-keepers' Union adopt and copyright a label (on the same plan as the Cigar-makers' Union), every member of the Union to be registered and given a number, and label every package of honey he sells.

Suppose the jobber to whom he sells his honey wants to put it up in 1, 2, or 5 lb. packages. To illustrate, suppose my number is 846. I sell A., B. & Co., 100 lbs. extracted honey. They inform me that they intend to put this honey into 1-lb. cans, and I furnish them 100 one-pound labels, No. 846. At the same time I furnish 200 lbs. to C., D. & Co., to be put into 5-lb. packages; hence I furnish them 40 five-pound labels.

Inform the public of this plan, and assure

them that all honey bearing "the Union" label is strictly pure. We must combine, and find some plan to prevent this wholesale adulterating.

When I lived in New York, a young man lived with me who was employed in one of the large wholesale grocery houses. He made no secret of the fact that they mixed their honey with glucose.

My brother, Prof. Charles E. Dwight, at one time State Chemist of West Virginia, invented and patented a process for making glucose. A company was formed, and for four years they were doing a big business at Wheeling, W. Va. One firm in New York contracted for all the "water white" glucose they made. They used this to adulterate syrup and honey; and in a letter to my brother they said: "We consider your white goods superior to Damlin's, as it is almost destitute of any flavor, and we can incorporate a larger percentage in our goods."

Extracted honey, or, rather, what is called extracted honey, can be laid down at our depot here from New York  $2\frac{1}{2}$  to 3 cts. cheaper than I can produce it. If the plan I propose is not practical, let some one propose another.

It works in other lines of business, and we can make it succeed if we all put our shoulder to the wheel.

HARRY L. DWIGHT.

Friendship, N. Y., July 14.

[Some eight or ten years ago, drone foundation was made and sold quite largely; but the bee-keepers of the country at that time decided emphatically for the worker—not only for the brood-nest, but for the surplus—principally because the queens showed a greater disposition to go above and lay in the drone-cells, particularly when there was an entire absence of such cells in the brood-nest. The reason for this was plain. On the other hand, when nothing but worker-cells was above, and the queen had plenty of the same sort to lay in below, she would let the surplus alone. We furnish drone foundation when it is called for.

It is a recognized fact that bees will usually build store comb for surplus, no doubt because they can build it quicker. But if it is a fact that bees will enter, build out and fill sections with drone foundation very much earlier than in sections of worker, it may be well for us to pause and consider. Let us have more light on this question from a number of our "old timer" comb-honey producers.

Your plan of preventing adulteration was proposed some two or three years ago, and discussed pretty thoroughly in the journals; but for some reason or other it seemed to be impracticable at the time, and so was regarded by the Manager of the Bee-keepers' Union, if we remember correctly.—Ed].

#### HOW TO KEEP BEES OUT OF WATERING-TROUGHS.

Apply with a paint-brush any old grease or butter, with a little coal oil added to it, to the edge and inside of the trough. This is a very effective remedy, and but for this I should almost have been obliged to give up bee-keeping, as my horses could not drink out of the trough at noon.

EDW. SMITH.

Carpenter, Ill., June 29.



#### FEEDING BACK.

**Question.**—Having some extracted honey on hand, and as our honey season is about over, I wish to know if it pays to feed back extracted honey to queenless colonies for the purpose of having them store it in the sections.

**Answer.**—I do not understand why you say "queenless colonies," for I never knew that such were used under any circumstances, where feeding back was done. I should not suppose that queenless colonies would do any work at all to amount to any thing in this way, for queenless bees are always very loath to build comb. I may be wrong in this, however, when it comes to feeding back, as I never used such colonies. Is there any reader of GLEANINGS who has used queenless colonies in this way? and if so, what kind of work did they do? The usual plan is to contract the brood-chamber till only combs nearly filled with brood are left, not more than four or five being used, so that the work with the feed will all be concentrated on the combs in the sections. As I should take it, the question means, though not so worded, Does it pay to feed back extracted honey for the purpose of having it stored in sections? To this I would reply that I believe it pays to do so only in having partly finished sections completed. Many trials have been made at producing section honey from the start out of a feeder; but, unless I have been misinformed, nearly every one who has tried it reports the same as not being a paying business. In fact, with the low price now prevailing for section honey, I doubt whether it pays to feed back to finish partly filled sections, as there is much labor about the matter; the honey is not so good after being completed, and the colony of bees thus treated is not left in as good shape for winter as it would have been if left undisturbed, while the partly filled sections are worth nearly if not quite as much to the bee-keeper as "bait sections" for the next season as they are when filled with honey of the kind gotten by feeding back. Such honey is quite apt to candy or granulate in the comb before all is disposed of; and unless great pains are taken in uncapping the parts of the combs the bees have sealed during the wane of the honey harvest, the combs in the sections are uneven on the surface, making them not desirable as to appearance.

#### SHADING BEES, AND SWARMING.

**Question.**—Will bees that are sheltered from the sun's rays swarm as early in the season as those not so shaded?

**Answer.**—Probably not, as a rule; yet much depends upon the kind of shade used. If the



shade is simply a shade-board, which keeps the sun's rays from striking the hive from 10 A. M. to 2 P. M., I think little or no difference will be made as to the time of their swarming, as the sun heats up the hive in the morning hours, from which it does not cool off much till it shines on it again in the afternoon, so that there is all the warmth necessary for rapid brood-rearing. But where the shade is a dense one from overhanging trees, the warmth from the sun can not reach the hive, and thus brood-rearing is retarded, causing later swarming. Such dense shade as above spoken of is a thing to be avoided by the apiarist who would secure the best results from his bees, in the opinion of Doolittle. Then, again, it apparently depends on the wants of the bee-keeper: for, seemingly, when the novice in the business has a great desire for swarms, the bees will most likely tarry in the sun or in the shade; and when, in later years, he has more than he wants, they will begin to swarm before breakfast, and continue to do the same till after supper, until he almost curses the day, which is sweltering hot, and alive with swarms which ought to stop their nonsense and go to work in the sections, as continued swarming and section honey do not go hand in hand.

#### ITALIANIZING.

*Question.*—With a view of being least liable to go wrong, how should a beginner manage to Italianize ten or twelve colonies of black bees?

*Answer.*—That depends upon whether you are desirous of doing all the work yourself, and thus learning all the little kinks of queen-rearing, or whether you simply wish to have all your bees of the Italian variety as speedily as possible, with no further attention being paid to the matter. If the latter, then I would advise buying untested queens of some reliable dealer; learn of him how to introduce them safely; and, when introduced successfully, you will have solved the matter. If, on the other hand, you would like to know something of queen-rearing yourself, then buy a queen of two different parties, known to be purely mated, and raise queens from one and drones from the other. Keep down all black drones by using only worker combs in the brood-chambers of the black colonies, except a little piece two or three inches square in one comb, keeping that comb in a certain position in each hive so that once every three weeks you can take these combs from the hives and shave the heads from the nearly mature drones. Thus you will have no black drones; and if your neighbors do not keep bees, and there are no colonies of black bees in the timber in any woods not nearer than three miles from you, you will have little difficulty in having the majority of your queens purely mated, after which your yard will keep Italian, no matter whether you increase your bees to 200 colonies or allow them to remain at

their present number. But should there be flying black or hybrid drones in your neighborhood, your young queens would give, practically speaking, pure Italian drones, so that the next year the most of your queens will mate with these, when by selection, after you have seen the progeny, you can soon have the whole apiary stocked with none but Italians.

[A number of years ago the correspondents of GLEANINGS seemed to generally agree that feeding back was not profitable; we therefore indorse what Mr. Doolittle has to say. In regard to Italianizing, we also indorse him here too. Perhaps it may well to suggest that untested Italian queens can now be bought more cheaply than at any other time; and just after the honey harvest we know of no time when Italianizing, or more generally speaking, changing the queens, can be effected more economically. In the advertising columns of our journal you will see how cheaply queens can be bought. We take pleasure in recommending you to the whole of them, for, so far as we know, they are all careful and conscientious breeders.—ED.]



At the last meeting of the Ontario Co (N. Y.) Bee-keepers' Association, the following resolutions were adopted:

*Whereas*, The U. S. Government has voted many thousands of dollars for the promotion of science and arts for the benefit of the few;—

*Whereas*, The U. S. Government has voted many thousands of dollars for the promotion of agriculture, but has never voted a dollar for the promotion of apiculture, upon which rests much of the success of the agriculturist, horticulturist, and the prosperity of millions;—

*Therefore resolved*: We, the bee-keepers of Ontario Co., N. Y., in convention assembled, would respectfully ask and demand that Congress vote a suitable appropriation, and employ competent parties to visit Judea and the East Indies, for the purpose of securing *Apis dorsata* and other races of bees not now domesticated, and secure their introduction into the U. S.

*Further resolved*, That a copy of these resolutions be published in the bee-journals, and that the bee-keepers of the U. S. be asked to join in petitions to Congress for the same purpose.

W. F. MARKS, }  
L. C. MATHER, } Com.  
F. D. FRENCH, }

Bellona, N. Y. RUTH E. TAYLOR, Sec'y.

#### DRONES FROM VIRGIN QUEENS—ARE THEY GOOD FOR ANY THING?

Are drones from a virgin queen virile? If so, I'm right for drones all the year round. This climate is so mild that I can raise queens all the year round; and if I can have select drones in mid-winter I can have my queens fertilized by them. I clip the wing of one of my most suitable virgin queens, and after a while she will commence to lay in worker cells. Of

course, these eggs would produce only drones; but when a few days old I transfer them into drone-cells; and it doesn't take me long to transfer a few hundred. They are then placed in a queenless colony, and perfectly developed drones will come forth. If the virgin queen could be induced to lay in drone-cells, all this would be avoided; but she usually can not. The queenless colony will try to convert some of the drone larvæ into queens, but not many.

H. L. JONES.

Goodna, Queensland, Aus., May 11.

[The best authorities seem to agree that such drones, if raised in drone-cells, are as good as any; it is possible, also, that those from worker cells are also. No real positive proof has ever been furnished either way.—Ed.]

#### DOES NEW COMB HOLD MORE HONEY THAN OLD?

I think old combs become more or less coated with wax and dirt until the cells are made smaller. If that is true, why wouldn't the brood be cramped in its growth?

ELBERT ARCHIBARD.

Stockton, Cal., Jan. 4, 1894.

[This question has been brought up before. Some hold, as do you, that the cells of old comb are smaller; but others, that the cast-off cocoons are removed from time to time. We have picked out, assisted by a lens, from four to six cocoons in a cell, but never more. It is possible that, when the cells, from age of the comb, show a tendency to become too small, the bees remove a few cocoons. We confess we do not know very much about this question. Authorities seem to be singularly silent.—Ed.]

#### ON THE USE OF THE PINEAPPLE.

On p. 475, June 1, you ask any of your readers who live in the pineapple regions to give you a little light on the use of the fruit. My lower place on the St. Lucie River is right in the principal pineapple section of the State; and while I am not making any business of growing the fruit for sale, yet I have some 1300 apples this year, and expect to increase the number of plants out each year.

At present we are exceedingly busy with one of the heaviest flows of honey I have ever seen, and I can not take the time to write up the subject as you wish, but will try to do so as soon as possible: I have often wondered why our undersized and refuse fruit could not be used up in some such way as you suggest; and when we go back below in August I will try some experiments with the canned juice. The practical difficulty will be to so can or bottle the juice that it will keep sweet, and we should be very glad indeed if you could tell us how it can be done.

O. O. POPPLETON.

Hawks Park, Fla., June 15.

#### GALVANIZED HONEY-VESSELS.

In the *Journal* for June 21, p. 244, Mr Woodley, in "Notes by the Way," recommends galvanized vessels for holding honey. I must caution your readers against them (unless coat-

ed). Several years ago, during the editorship of the late Mr. Abbott, I found, in packing over forty stocks for the winter, the combs contained dead sealed brood (whole combs of it). I forwarded a portion to the *Bee Journal* office, and Mr. F. R. Cheshire wrote in reply, "Brood healthy, well fed, symptoms of poisoning; what have you fed the bees with, and in what vessel was it placed?" I answered: The vessel was a galvanized one. The food was a little thin honey standing a month in the vessel, to which was added 1 cwt. of sugar made into syrup and fed to the bees. It was afterward found that the acid in the honey had acted on the zinc and slightly poisoned the syrup—not sufficiently so to kill the bees, but sufficient to kill the whole of the larvæ, and, if so, it must be a bad thing to store honey in.—J. R. TRUSS, *Ufford Heath, Stamford, July 2*. —*British Bee Journal, July 12*.

#### APPLE-BLOSSOM HONEY IN ILL REPUTE.

Apple-blossom honey is, with us, considered very poor; in fact, we dislike it very much. We would not eat it, but have given it to those not experienced, or those who seldom eat honey. They pronounced it fine. I told them I could not eat it. They said it was all honey to them—saw no difference. Hodge might like it, the same as some like castor oil and quinine.

Atherton, Ind.

G. F. AYRES.

#### APPLE-BLOSSOM HONEY FINELY FLAVORED.

As you ask for reports concerning apple-blossom honey, I would say that I consider it one of the finest-flavored honeys we have. I extracted over 100 lbs. from an out-apiary, a sample of which I send you.

The honey season has not been as good as expected, owing to too much rain. Alsike gave us a nice lot of honey notwithstanding, as we have induced the sowing of it by a judicious distribution of alsike leaflets.

CHARLES STEWART.

Sammonsville, N. Y., July 10.

[The sample was received, and was of a very fine delicate flavor. Friend Ayres, above, does not prize it so highly. Perhaps his was not real apple-blossom honey, for the majority of the reports speak well of it.—Ed.]

#### IN FAVOR OF THE 8-FRAME HIVE; THE IMPROVED BAR NOT LIKED.

In regard to the discussion now current in GLEANINGS may I say, first, of the two (eight or ten frame hives) I much prefer the former? I think, from my own experience, and for this part of the Union, the eight-frame hive is correct.

Now for the second question. I think your Dovetailed hives are very nice. The frames look beautiful, and seemed to be spaced perfectly (new goods of 1894); but let me say that, just under your top-bar (I mean that improved



groove, ridge, or starter, running along the center for a comb-guide, leaving two ridges on either or both sides) does not work with me for hiving on empty frames. The bees have taken the outside one frequently. Give me the former style, every time, with one unmistakable comb-guide and a bottom-bar  $\frac{3}{4}$  inch broad, and a little flexible. GEO. W. GEASLEN.

Jessup, Md., July 11.

[There have been other complaints, more particularly because of the difficulty of fastening comb foundation to the comb-guide of the improved top-bar; and very recently we have changed the cutter-knives so as to make the grooves on either side deeper, leaving the comb-guide more prominent, and more accessible to a foundation-roller. The new top-bars, while modified but slightly, would give you but little trouble, except, perhaps, to have a swarm upon frames containing such top-bars absolutely free from any comb-guide. It is not a safe thing to do, usually, to hive on frames strictly empty. Most bee-keepers fasten a narrow strip of foundation to the comb-guide; and even if it project down only an eighth of an inch, it will prevent the bees from building the combs cross-wise of the frames. Another season we contemplate sending out with hives all complete, enough foundation for mere starters. We thus secure all the advantages of hiving on empty frames, and at the same time insure the bees starting right. Our bottom-bars have been made  $\frac{3}{4} \times \frac{1}{4}$  inch for two or three months.—ED.]

THE THEORY THAT NURSE-BEES TRANSMIT  
THEIR CHARACTERISTICS TO THEIR  
OFFSPRING DISPROVED.

I'm glad to have friend Abbott correct me as he has done on page 536. But it seems to me he might have done it in fewer words—something like this: "Dr. Miller is an old fogey, and still holds to the theory that was held several years ago, that the germ is furnished by the male. Scientists nowadays believe that the new being does not proceed from the father alone, but from the union of two cells—one furnished by the father and one by the mother; therefore traits resembling those of the mother come through the original cell, and not, as was formerly supposed, through nourishment received from the mother; hence he has no support therefrom to prove that traits come from nourishment furnished by the nurse-bees."

There, Bro. Abbott, haven't I made a better job of it? You see, I've told in a single paragraph what you occupied two full pages in telling. I've just one excuse for my mistake—ignorance—pure ignorance. The old theory had remained good the last I knew of it, and, having held good for ages, I didn't think of its having been knocked endwise in the last generation. But, please remember that I am no champion for the theory of heredity through the nurse-bees. I'd rather not believe in it. Good men, however, advocate it; and if there is any thing in it we are wise to look the matter squarely in the face, and be guided accordingly; for it has direct practical bearing on queen-rearing. So I am very glad of friend Abbott's

correction, for it leaves a better chance to believe that it makes but little difference what sort of nurse-bees rear a queen, providing the egg comes of good stock. C. C. MILLER.

Marengo, Ill.

HASTY'S BEE-VEIL; A SUGGESTION.

If Mr. Hasty will make his veil as I do, he can lick his fingers as often as he pleases, and let out a stray bee without taking out a pin or unfastening any thing. Tell him to sew the veil to a yard of broad elastic, allowing a little fullness for the elastic to stretch; sew the ends together; take two pieces of the elastic, about 12 inches long, and, with four safety-pins, pin them on for armholes. You can make them fit any one by moving the pins; then you can wear a broad-brimmed hat, and the veil never touches your neck. A. GRUBB.

THOSE CALIFORNIA REPORTS.

Mr. Root:—I supposed the men who gave the reports of the S. C. B. K. A. were true, as they were surely best informed. I simply reported what they gave, and what I took down on the spot. Personally I have all yet to learn. I know that this year is almost if not quite a total failure. This strike shuts us from the world. I hope it will bring good commensurate with the cost. A. J. COOK.

Claremont, Cal., July 6.

THE "CRANK" VS. THE "JAW."

In one of Rambler's Echoes, printed June 15, he suggests that some one construct a combined head-dress and smoker for bee-men, the smoker being operated by the jaw of the wearer, adding that men might not work it; women would. I was ungallant and *unwise* enough to read this Echo to a lady, giving the insinuation its full force, when she remarked, "Some one ought to make a smoker to be operated by a *crank*. Women couldn't work it, but men *could*." Please tell Rambler.

JESSE W. NEWELL.

Farmersville, Ill., June 22.

THE SWARM OF A CLIPPED QUEEN.

In your issue for July 1st, page 536, Dr. Miller takes the *British Bee Journal* to task for saying that the swarm of a "clipped queen will join her on the ground." Please say to the doctor that I have had only one swarm this year; and after getting out of sight they returned, and settled on the ground within ten feet of the hive, where I soon found one of Trego's clipped queens, and in 15 minutes I had rehived them.

Franklin, Tex., July 6.

J. MITCHELL.

THOSE DRONES FROM LAYING WORKERS.

I notice you requested me to report about drones from laying workers. The island I had picked out was occupied with sheep under the care of an old Mexican, and he was afraid to let me put bees near him. I am about to

perfect arrangements with the light-house keeper, 10 miles out at sea, on a small island near Port Lavaca. Then I shall soon be prepared to answer the question.

Beeville, Tex., July 16. JENNIE ATCHLEY.



Behold, I will bring it health and cure, and I will cure them, and will reveal unto them the abundance of peace and truth.—JER. 33: 6.

We are beginning to think that we had better call a halt on the tariff question. It has now been quite well discussed on both sides, so far as it affects bee-keeping.

The *American Bee-Keeper* objects to the practice of having its name indicated by the initials alone, and wants the names of all the journals spelled out in full. The point of order is well taken, except in such matter as Stray Straws, for instance, where the names of all the different bee-journals are used so constantly that a shorter way of indicating them seems almost indispensable. We think such abbreviations, where numerous, will cause no confusion.

The Annual Report of the Bee-keepers' Association for the Province of Ontario, 1893, is before us. It contains a very full and interesting account of the proceedings of the last meeting of the Ontario Bee-keepers' Association, and was printed by order of the Legislative Assembly of Ontario. In looking it over we were struck at once with the evident fullness and correctness of the report; and, being curious to know who was secretary, it was with no little pleasure that we learned it was the late S. Corneil, of Lindsay, Ont.

#### STATISTICAL REPORT CALLED FOR.

We are expecting now to send out in a few days some statistical blanks. Now, we do not wish to slight anybody. We should like to have every bee-keeper, who is interested in knowing what the crop of honey has been, to send us a postal card at once—later will not do—answering just these two questions: 1. What has been the honey season in your vicinity, so far as you can ascertain? 2. What was your average yield in honey, both comb and extracted? Now, please do not go and add a whole lot of particulars; because, when we attempt to go over hundreds and perhaps thousands of postal cards, it takes time to tabulate them properly.

Of course, you fully appreciate the necessity of knowing what the crop has been. If you or your neighbors have secured good yields, and

you know the yield has been poor throughout the country, you will not be in haste to lump it off at a low price.

#### ROBBING IN THE WAKE OF BASSWOOD.

In very many localities in the North there has been an excellent basswood flow. We presume that, by this time, it has stopped, and robbers—oh my!—look out! Be sure that the entrances to all nuclei are contracted; and if they get started badly upon any one hive, cram the entrance loosely with grass—just tight enough to prevent the entrance of robbers for the time being. In a very short time—at least when the bees inside have had a chance to recover themselves—the grass will have wilted, and no smothering will have taken place, as might be the case were the whole entrance stopped tight with a stick.

By the way, robbing can be checked to a certain extent by dousing the bees as they pile over each other pell-mell near the entrances of hives, with sprays of water from the fountain pump, or even from a watering-pot. It wets their wings up, wets the grass, disconcerts the robbers, and gives the bees in the hive a chance to know "where they are at."

#### CONDITION OF THE HONEY-YIELD SO FAR AS REPORTED; BETTER THAN LAST YEAR.

We have had a remarkable flow from basswood. It lasted for us, and for our neighbors within three or four miles of us, about a month. Usually we do not get more than about ten or fifteen days flow. One of our neighbors reports about a fifth of a crop; another, a little better than a half. Neighbor Chase, instead of being "in clover," as reported in last GLEANINGS, by reason of the prospect before him of obtaining a large crop from alsike and basswood, obtained 15 lbs. per colony this year, against 60 for last year. So far as we can ascertain, the yield from basswood has been good in most localities, particularly in Wisconsin, New York, and Pennsylvania. Colorado reports a good yield, presumably of alfalfa. Michigan also seems to have done well. Reports show that the season has been an entire failure in California. The fact that we are receiving more offerings, and at a lower price, seems to indicate that the season generally was better than last year, east of California.

#### THE ATCHLEY FIVE-BANDED QUEENS—A GOOD WORD FOR THEM.

About a year ago Mr. Vernon Burt, of Mallet Creek—a name familiar to our readers—ordered of Mrs. Jennie Atchley, through us, a dozen five-banded queens, to test them. He wintered most of them over; and this year, now that the honey season is over, he reports that their colonies brought in *more* honey per colony than any others he had in the apiary; and this morning he came down to order a dozen more of the same kind of queens.



Said he, "I shouldn't care—in fact, I should rather prefer to have every colony in my apiary of the five-banded sort, if they are going to pan out like this for honey." If the next dozen shall do as well, his apiary will ultimately be queened with five-banders.

This may look like a free advertisement for Mrs. Atchley; but inasmuch as she sustained great damage through a hot Texas wave, as mentioned in our last issue, we feel sure that many of our readers in need of this sort of stock will be glad to place their orders with her, thus in a measure helping her to make up the great loss she has sustained.

The following is a note just received, in line with the foregoing. We take pleasure in presenting it.

My July 15th GLEANINGS has just arrived, and I notice in your remarks about five-banded bees you say they are crosser than the average Italians. Now, I wish to say that my five-banded bees are the gentlest I ever saw, and are not disposed to fly from the combs while handling. I never use veil or smoke in handling them, and have never had a sting from my breeding colony. I have just been out and gone through the hive, which is a strong two-story colony, and there is no honey coming in from the fields. I used neither veil nor smoke, and the bees seemed to take no notice of me whatever. It is almost impossible to make them sting. My little boy, six years old, will scrape them off the front of the hive, and carry them around in his hand.

J. E. HAND.

Eladora, Ia., July 18.

[We did not say that *all* our five-banders were cross.—ED.]

#### BEE-PARALYSIS—THE DISEASE INVESTIGATED IN AUSTRALIA; ANOTHER CURE.

It seems that the Department of Agriculture for the province of New South Wales, Australia (reference to which is made in another column), has seen fit to institute a special investigation of the disease called "bee-paralysis," its cause and cure. In warm climates this peculiar disease makes serious havoc; and hitherto, for such climates, we knew of no certain and satisfactory cure. Of course, here in the North we think nothing of it, for the bees seem to be able to ward off the disease themselves.

Well, it seems that this same disease has been making havoc in some of the large apiaries in New South Wales—particularly in that of Mr. Kitching, of Campbelltown. The Department of Agriculture for that province employed Mr. R. Helmes to study the disease in the apiary of Mr. Kitching. He did so, and the report is now before us in the *Agricultural Gazette* of New South Wales. Mr. Helmes' description of bee-paralysis shows that it is exactly what we have here in this country; and he also associates with it another disease which he calls the "Depilating Disease;" but the symptoms are so nearly alike that we have come to the conclusion ourselves that the two diseases are one and

the same—the last mentioned being a less aggravated form of bee-paralysis.

Mr. Helmes has concluded that one of the causes is a diseased or poor queen, and that the removal of the same assists greatly in the cure of the disease. He further recommends purging and spraying the bees. At this point we can do no better than to give his own language for his method of cure:

Summarizing the methods I recommend for curing the bee-diseases known as bee-paralysis and depilating disease,\* they are in short as follows:—

Disinfect the stand and hives by heat; in case of bee-paralysis, give a purgative, and keep the bees closed up for fourteen to eighteen hours, and then start them from the hive, and excite them by spraying with diluted oil of cinnamon; spray in either case with  $\frac{1}{4}$ -per-cent solution of carbolic acid every third or fourth day; supersede the queen of the diseased colonies in both cases as soon as possible by a prolific queen from a healthy strain. As a good honey-flow has been observed to help materially to eradicate diseases, I would advise feeding in all cases where either of the diseases has appeared in a stock in which the supply of food is reduced. It may not act quite as effectively as the gathering of nectar, for quite a greater amount of exercise is necessary, and the activity displayed by the bees during this process seems certainly conducive to keeping the bees in good health; but it is the best substitute for it, and will keep the individual inhabitants of the hive strong, and consequently better adapted to resist the aggression of contagion. Moreover, the food thus given can be judiciously medicated with antiseptics, which would be desirable, if not actually necessary.

Regarding the purgatives given by me, I found that podophyllum or senna acted very beneficially, without producing any apparent weakening effect; of the two, podophyllum seemed to me preferable. The doses given were: 1 fluid oz. of tincture of podophyllum to 6 lbs. of honey-food; or 4 fluid oz. of tincture of senna to 6 lbs. of honey-food, the honey-food to consist of three parts of honey and one part water, to be well boiled and skimmed. A little extra water has to be added to allow for evaporation during the boiling, the medicine to be added after the food has become cool. Three-quarters of a pound to a pound, according to the strength of the colony, or less if the same is weak, spread over a perforated sheet of zinc, as described before, is about the quantity to be given; but as the number of bees in each hive is often very variable, a hard and fast rule can not be laid down for it. As in many other cases, the administration of the medicine and the general treatment must be left to the judgment of the apiarist, who will know best how to choose a suitable time for it, and who is generally fairly well acquainted with the strength of his colonies.†

I have not tried Epsom salts, but have heard of its being administered with good results. No doubt it will purge readily, and a 1-oz. packet to 10 lbs. of food would produce a strong medicine. A somewhat drastic method of purging seems to be necessary to cure bee-paralysis; but the absence of all stimulating action in Epsom salts induced me to reject it.

It is well known that salt is required by bees, particularly in spring, before any honey-flow sets in, and it probably acts as a mild purgative upon their constitution. At any rate, it seems to be a tonic, so to say, and therefore it must be recommended to be given at times to the bees, so that they do not have to seek it at offensive places, such as dung-heaps, urinals, or the overflow of closets. It is very desirable that a few small wooden troughs filled with brine, or, where the atmosphere is not too dry, a few pieces of rocksalt be kept at every apiary, to enable the bees to get the necessary supply readily and in a clean manner when they feel inclined for it.

\* This is more generally known as the "hairless" disease, which, however, sounds so irrational that I can not, on account of this, adopt the name. It is not the disease that is hairless, but the bees become hairless during its progress.

† I found that an ordinary egg-cup holds as near as possible a fluid ounce, and may safely be used in case a graduated vessel is not available.

‡ Dr Cobb advised that, to 10 lbs. of food, 1 oz. of podophyllum, or 4 oz. senna be mixed, but I found this quantity not effective enough.

To obviate the offensive smell carbolic acid possesses to bees, I mix the  $\frac{1}{2}$ -per-cent solution with some oil of thyme. The odor of this, it is well known, is very agreeable to bees, and a dozen or twenty drops of it to a pint of mixture scent it perfectly, and apparently suppress the smell of the carbolic.

Purging the bees is a rather new idea to us; but it seems reasonable, inasmuch as the bees affected with the bee-paralysis have swollen or distended abdomens. They seem to be unable to void their feces, which is of a yellow or watery color. The sprayings alone, so far as reported to us for this country, seem to have had but little effect.

Inasmuch as this disease seems to be making serious havoc in warm climates, it is highly important that we know more about it; and we hope some of our friends in the South and in some parts of California will try the treatment described by Mr. Helmes, and report the same through our columns. For Mr. Kitching, in whose apiary Mr. Helmes operated, a complete cure was effected. Mr. C. S. Ford, of Columbia, Miss., in this country, has tried every thing we could suggest. We hope, however, he will try this purging, together with the sprayings, once more, and report to us the result. While we are not overly sanguine, we think those whose bees are seriously affected with the disease should give the treatment at least a trial.



#### TOWNSEND'S SECTION-FORMER.

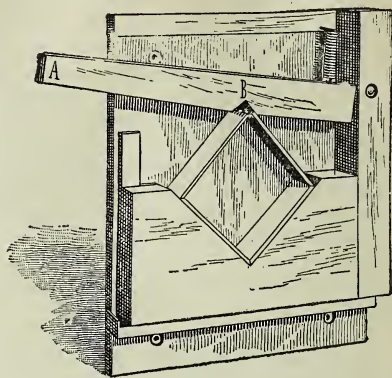
A few days ago we received the accompanying electrotype, together with a circular, from O. H. Townsend, of Alamo, Mich. We had seen the same thing illustrated in the *Bee-keepers' Review* previously, but did not believe there would be power enough to fold the section satisfactorily. The sample machine that came to hand with the electrotype was put to the test, however, and, greatly to our surprise, sections were folded neatly and nicely. The Hubbard section-former, with which our readers are familiar already, has a powerful toggle-joint for forcing the dovetails of the sections together. This machine, instead of depending upon mere pressure, drives the corners together with a sort of blow or sharp thrust from the hand. The following are the directions sent out by the manufacturer:

##### DIRECTIONS FOR USING.

Lay the press flat on a bench, with the large notch from you, with the end of the lever pointing to the right. Secure the press by fastening a cleat to the bench back of the press.

Now, having dampened the sections where they are to be bent, pick one up, taking hold with both hands, with the fingers on the side having the grooves on, holding it from the lower side; this puts

the section in a position to fold and place in press with only one motion. Let the ends of section crowd out in the notch B in the lever; hold the sec-

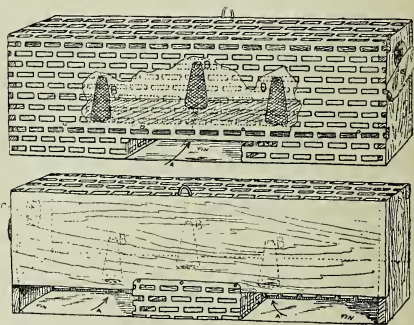


tion down with the left hand, and give the lever a light, quick stroke with the right hand, which finishes it.

For further particulars, correspond with him as above.

#### HARRISON'S IMPROVED ALLEY DRONE AND QUEEN TRAP.

It is well-known that the Alley trap, as arranged by the inventor, was designed to catch only the drones *in the hive*. Mr. G. W. Harrison, a neighbor living in Copley, O., has arranged his so it will not only catch the drones that are in the hive, but the drones without, that may apply for admission at its entrance.



The engraving above will, we think, make the idea plain. You will observe there is both a front and rear view, the last mentioned being at the bottom. The drones from within the hive will, after failing to pass the zinc, take the direction of the arrows, as shown in the lower figure. Those from without will take the direction of the arrow—that is, under the central passageway, and up through the cone. We believe Mr. Harrison claims that it gives better ventilation. Mr. Harrison's modification may or may not be new. We have not looked it up.



## ROBBING SICK PEOPLE.

## SCIENCE AND SUPERSTITION.

By A. I. Root.

It is bad enough to take money from people in health and well to do; but it is a shameful thing to rob the sick and the suffering, and the poor and destitute. Those who are engaged in the business claim that they do not take anybody's money without their consent and approval. But I do not think this makes very much difference. Obtaining money under false pretenses is recognized as a crime by the laws of our land; and if you think I am too severe in the matter, let me explain to you the way in which money is obtained by false claims and misrepresentations.

Most of you recollect about how long ago it was that we commenced finding articles in the reading-matter of our home journals and papers, said articles being only an advertisement, for which the editors are exceedingly well paid. It has been urged that nobody is deceived, because every one understands that it is an advertisement, even if the head-lines do read, "Almost a Miracle," and "Snatched from the Brink of the Grave," and such like expressions. If nobody is deceived, let me ask you why the proprietor pays the editor such a big sum of money for inserting things of this kind. Ask the editor of your home paper how much he receives for these things; and if he is honest his reply will astonish you. You may insist, however, that the medicines do do *some* good; and I confess that, for a time, I thought there must be some real virtue, or else men and women standing high in society, and oftentimes those who are widely known throughout our land, would not lend their names to such schemes. But an experience that I have had of late has been giving me a glimpse of the truth. I am *sure* I am right, dear friends; and every year I live, the testimony comes home to me stronger and stronger that few of the medicines so largely and widely advertised have any effect whatever on the one who buys and takes them. Now for the proof.

Many of you have doubtless seen an advertisement headed "Electropoise." The thing emanates from the Electrolibration Co., New York. They profess to cure disease without medicine. Some of you may have had some experience with the thing, and may insist that it has virtue. To which I reply that, if there is really any virtue in it, it is exactly of the kind that belongs to an old horseshoe. You have heard in childhood, if not later, that finding a horseshoe would bring good luck; and you have doubtless seen horseshoes nailed over the door of the superstitious or ignorant. They claim that the horseshoe brings good luck, wards off disease, etc. Well, let us suppose there is virtue in an old rusty horseshoe; and suppose somebody discovers that, if he attaches a wire or string to the horseshoe, and then ties it around the patient's ankle, virtue will emanate from the horseshoe, proceed to the patient, and cure him of various bodily ills. Suppose, too, the inventor should tell you he has discovered that, to have the thing work to the best advantage, the horseshoe must be placed in a bowl of ice water, or hung out of the window on a cold day, etc. Perhaps there are people who might be made to believe this; and if the belief were strong enough they would doubtless feel better, and may be get well, and perhaps give testimonials to the inventor of the apparatus. Now, Electropoise has just as much virtue, and is just as scientific, as the arrangement I have mentioned, and no more. And yet

scores of testimonials are given, and a great part of them from prominent men or women. Some may occupy important positions in our nation, some with "Rev." attached to their name, and a few who have been entitled "professor." More of this anon.

One of the first indications you have of a downright humbug and swindle is the price charged. The proprietor of a patent medicine that costs him but little if any more than sugar and water, wants \$1.50 a bottle; and he tries to make people believe that a dollar would not pay cost.

A few years ago a company started out making a patent fire-annihilator. It was some sort of liquid in fancy-shaped green or blue bottles. We wanted some for our factory, so we might put out a fire very quickly by simply smashing one of the bottles in the midst of the conflagration. The agent said the price was \$24.00 a dozen; but in order that he might have our name to help him make sales he would furnish them to us for \$18.00 per dozen, which was "only a little above cost." When our warehouse was burning I tested some of the bottles, and they were of no use whatever—that is, they were of no more use than a pint of salt water would have been under the circumstances. I tested the water, and pronounced it simply salty water. Then I compared its effects on blazing embers, with salt and water. It behaved exactly the same. Now, these fellows went to the trouble of making a public exhibition of their "discovery" for putting out fires. The whole thing was a put-up job and a fraud; and they managed it so well that even great railway companies equipped their offices with these cheap glass bottles, hanging conspicuously in sight. Two dollars apiece was the price charged for a five-cent bottle filled with salt water—one-fourth off where prominent individuals purchased considerable quantities.

Well, the above is the way these swindlers manage right straight through. The big price is one of the features of the advertisements. The large size of Electropoise costs *only* \$50.00. On the front there are some levers and buttons, probably to make people think there is some sort of current or virtue emanating from the thing. The pocket instrument costs *only* \$25.00. It is about as large as the nickel-plated handle of an ordinary bicycle. The machinery inside is probably about as complicated. Ernest succeeded in getting the agent to let him take the thing in his hand. He soon discovered where there was a screw on one part of the machine, and was about to take the thing apart to see what furnished the \$25 worth of "virtue." The agent became alarmed at once, and declared that the instrument would be spoiled (?) if it were opened.

The makers declare distinctly that the influence that comes from this thing is not electricity, but that it is "something" they have discovered themselves. Let us look at this a minute. There are at present known to science three imponderable agents—heat, light, and electricity. Only electricity passes along a wire—that is, any considerable length of it. If they have got something else that will run through a wire, or on a wire, like electricity, then they have discovered a new imponderable agent. If this be true, how does it come that the whole scientific world has never yet heard of it? and yet the thing was patented as long ago as 1891. By the way, I wish to call the Patent Office to order. One of the readers of GLEANINGS, about a year ago, wanted to get a patent on a flying-machine. He went to Washington, but they told him that he must make his machine *fly*, before he could have a patent. They admitted that they *used* to grant patents on

things that had never been made to "go," but they did not do it any more; but yet in 1891 they granted a patent on a thing that did not "go," and does not go yet. A brief quotation from the circular they send out ought to be sufficient evidence of the true character of the thing to any intelligent person. I take the following from page 2:

With either instrument, the treatment consists in the absorption of pure oxygen from the atmosphere into the circulation, in consequence of the polar attraction produced on the surface of the body by the Electropoise, the rapidity of the process being governed, when using the pocket instrument, by the temperature of the polarizer.

Now, if you are not sufficiently versed in chemistry and physiology to comprehend the above, take it to your family physician and ask him if I am not right about it. If you think he is prejudiced against it because it spoils his business of curing people, show it to the principal of any school or college where physiology and chemistry are taught; or submit it to any teacher, or even a pupil well along in these studies. Is there either sense or science in claiming that this charm has any power to absorb oxygen from the air, and get it into the circulation of the human system? What about the expression "polar attraction produced on the surface of the body," when they do not even claim there is any electricity present?

In the room adjoining we have a new paper-folder. The machine cost \$700, and it does its work beautifully. There is, of course, a multitude of wheels, levers, cams, arms, etc.; and there are bits of glittering steel that work like human fingers, and with much greater precision and rapidity. Now, suppose the manufacturer of this beautiful machine had put in a lot of wheels and levers, and polished machinery, only to give the thing a taking look, but things that were of no sort of use whatever to the working of the machine. Suppose they were to put it in as a sort of excuse for asking a big price. I do not think any manufacturer of labor-saving machinery was ever guilty of such folly. They know better. People who buy machinery expect to use their eyes and ears and common sense; but the inventors of these remedies for disease seem to take it for granted that sick people are a class that never reason.

Now to the main point before us. How about the testimonials from ministers, and editors of Christian papers? I am *forced* to conclude that these people are careless and thoughtless. They do not know what they are doing, and, together with a great lot of suffering humanity, they have yet to learn that people often get better without taking any thing or doing any thing. Nature is untiringly at work in making good every wrong or every damage to the human system. Nature keeps up this incessant struggle whether you take medicine or not. It is the old story of bee-sting remedies over again. More than twenty years ago I tried to make the world believe that no outward application whatever for a bee-sting would do any good, yet thousands of people had remedies; and these remedies were faithfully used, and handed down from parent to children. They knew the remedy did good, because the pain often "stopped instantly" after the application, forgetting that the pain of a bee-sting usually stops instantly any way. Perhaps bee-keepers have finally decided that I was pretty nearly right, for we do not hear much about bee-sting remedies of late.

This is a large subject, friends. It would fill page after page of this journal were I to give proofs that have come under my own observation. A few weeks ago the *Scientific American* gave a case right in this line. Some professor

had made a startling discovery of a new remedy, to be introduced into the circulation by hypodermic injection. Everybody who was treated received wonderful benefit. The matter was submitted to an old gray-haired veteran in the science of medicine. He directed the operators to give a part of the patients an injection of clear water, without telling them any thing of the experiment that was being made. Those treated with pure water received just as much benefit as those that had the new medicine. In fact, some of them were most emphatic in regard to the virtues of the wonderful discovery. Everybody was astonished at this except the old doctor. We need to recognize that our pains and aches are greatly the result of a mental condition.

When I was little more than a boy I used to give lectures on chemistry and electricity, and I sold little steel magnets for experimental purposes. I was greatly perplexed to find a large demand for them for curing rheumatism. Old gray-headed men had chunks of lodestone they had carried all their lives, to ward off rheumatism. In fact, money would hardly buy these innocent lumps of metal; and, in spite of all I could say, almost every evening somebody would insist that these little magnets *would* cure aches and pains. A man whose arm had been paralyzed and helpless for months, after receiving several shocks of electricity lifted up his hand and used it almost as well as the other. I too might have claimed "almost a miracle." But I was satisfied then, and I am now, that brisk rubbing or pounding the partially paralyzed limb would have been equally effective. Just look through the papers; look around in your own neighborhood, and you will find the vender of almost every patent medicine, whether he charges 25 cts. a bottle or \$1.50 a bottle, gets, without any trouble, scores of wonderful testimonials. It may well make one feel sad when he sees a world of people giving their hard earnings in exchange for imaginary good. It seems impossible that any intelligent *physician* should give an honest testimonial to Electropoise; and I am firmly convinced that the one who does this is lacking either in sense or conscience.\*

I wish to say a word in regard to the testimonials for patent medicines and similar things that come from *ministers of the gospel*; and may God give me grace to say what I have to say, in a right and proper spirit. I well remember the time, years ago, when I had decided that ministers, take them as a whole, had no comprehension of practical business or of real science and scientific truth; and there are a good many people now—some very good friends of mine—who declare that, from force of education, or something else, the clergy of our land fail to use *good common sense*; or, if the expression is not too hard, that they seem to *lack* good common sense in many practical every-day matters. Now, mind you, I have

\*So far as I can discover, it is the religious press principally that gives place to this Electropoise advertisement. In fact, the only full-page advertisement I have seen was in a religious paper. Now, is it really true that the editors of our religious papers have less intelligence than the editors of our scientific and agricultural papers? or if they have the intelligence, have they less *conscience*? Why, friends, it is a fearful thing to contemplate, either way. This charge has been brought against the religious press before, that they will publish anything they are paid for. Perhaps I should call attention to the *Sunday-School Times*, which takes a remarkably different stand in this respect. They even agree to make good the consequences of any swindle that may get into their columns; and many of the agricultural papers absolutely refuse to insert a medicine advertisement of any kind.



changed my mind in this thing; for the best and truest friends I have on earth are among these hard-working servants of God; but yet I remember my old feelings of hostility toward them, and it pains me to the bottom of my heart when I see them heedlessly give unbelievers *reason* to think them lacking in perception in business and scientific matters. I do not know of any thing more damaging to the cause of the Christian religion than to see a minister forget his sacred calling so far as to let his name be paraded in an advertisement for a fraud. Ministers, as a rule, do have more or less scientific education. They know more or less of physiology and chemistry; but, notwithstanding, they either forget this education, or they neglect to notice that the thing they indorse or recommend is at shameful variance with all text-books' teachings. It is urged that this is a progressive age, and that if one does not look out he is behind the times. Yes, this is a progressive age; but all real progress is made along the beaten path of science. People are not progressive in perpetual motion, nor in regard to the philosopher's stone, nor in the elixir of life, and suchlike remnants of heathenism.

In conclusion, it is a sad reflection on the clergy as a class; nay, more—it is a sad reflection on the intelligence and civilization of this present age, to see any one who professes to have a tolerable education accept the idea that a wire attached to such a bauble may bring "pure oxygen from the atmosphere into the circulation." Dr. Priestly, the discoverer of oxygen; Harvey, who discovered the circulation of the blood; and Farady, who made important discoveries in electricity, might be expected to groan in their very graves to think that, at this late date, ministers of the gospel, and college professors, should indorse such reasoning, and advise the world at large to invest their money in the "instruments."



God is light, and in him is no darkness at all.—I. JOHN 1:5.

And this is the promise that he hath promised us, even eternal life.—I. JOHN 2:25.

Mrs. Root said, a few days ago, that young people, or people of middle age, might get along in this world tolerably well without any faith in an overruling Providence; but as we approach the decline of life, say after we are forty or fifty years old, humanity would be sadly off without the sustaining power and grace of a faith in God and his promises. I believe she is right. As we pass by youth and middle age, sooner or later we begin to be conscious of a failing strength and failing powers. We begin to look about us for something to lean upon; and I tell you, friends, we need something more than the support of a wooden staff. In studying humanity I have sometimes thought that we all need a reserve force of cheerfulness to draw on as occasion may make it convenient. Where I sit dictating I like to look at the great reservoir of water on the hill. The water stands within a foot of the overflow-pipe; and during this intense July heat it is not only convenient but comforting to realize that there is something like a reserve fund of 2000 barrels of water to draw on. There is so little wind that the mill stands almost idle, with the thermometer up from 96 to 98 in the

shade. It is excellent weather for the farmers to gather their hay and grain, for the thrashing-machines can follow almost immediately after the modern harvesting appliances. But man and beast constantly feel the need of moisture. The big stone watering-trough is continually patronized. The thirsty horses begin to step with more energy as they catch sight of the well-known trough; and the driver springs from his big hay-rack with alacrity, and grasps the tin cup as he turns the hydrant. While the windmill is idle, a pump in the basement is worked by our steam-engine; and when no water is being drawn from the hydrant, the surplus goes into our water-pipes, and accumulates in the great reservoir on the hill.

Of late, it is getting to be the fashion to have reservoirs for a surplus of other things besides water. Storage batteries are *almost* a success; and you know what I have said about storing up heat in the depth of winter so you can have some to draw on the next day. Well, since Mrs. Root's remarks I have been thinking of a storage battery for cheerfulness. I guess it had better be called faith in God; and my two texts at the head of this talk tell us why a faith in God will tide us over times of great trial. First, we are told, "God is light, and in him is no darkness at all." Oh, I am glad to find that passage in the Bible! for what should we do if there were nothing greater, stronger, and wiser in the universe than humanity? I have talked with some unbelievers who tried to make out that poor weak humanity is all-sufficient. The other part of our text tells us, "And this is the promise that he hath promised us, even eternal life." We need not be troubled, even if we are getting old, and if we begin to feel that our powers are failing, and that strength and energy are waning. Oh, no! for our faith is in him, and his promises are all true. The words "eternal life" do not mean simply living for ever; for if it did it would not be any comfort at all to the old veteran. One who reads his Bible knows that eternal life is something more than *existence* in this world of ours.

Now a word more about that reservoir of mine—that reservoir of faith—that storehouse where we have a great lot of cheerfulness put up for a time of need. Did you ever think what a boon a bright, cheerful disposition is? As you go through the world, how everybody seems to lean upon and take hold of the able and efficient man, and the man who is always cheerful and good-natured—the one who can set everybody to laughing just when there seems to be danger of a fight. Dear me! but haven't we had fights in earnest during this month of July? I have wondered sometimes whether these contending parties ever recalled themselves enough to look pleasant and good-natured, and be cheerful. One refreshing little incident occurred right in our own vicinity. The coal-miners struck for 65 cts. a ton. The proprietors of the mine were willing to give it, in order to let the work go on; but the Union would not allow the owners and workmen to go ahead, even if they were at an agreement. Well, when the strike was ended, what did the owners do? Why, they did all they proposed, and more too. They said, "You wanted 65 cts., and we agreed to give you that much; now here is 70 cts., and let's get to work, and be pleasant and good-natured about it." This is the kind of joke I enjoy; and I confess I was somewhat disappointed that I did not see more of it. I confess I *did* expect to see both capital and labor get ashamed of themselves and ashamed of so much quarreling; and I expected to see more exhibitions of the true American spirit of liberality. But, about that storage battery for cheerfulness.

My friends, you have no doubt attended funerals. For 24 hours or more you have felt it incumbent upon you to be sober, and to look solemn; but, unless I am mistaken, some of you forgot yourselves after two or three hours of long faces, and somebody perpetrated a little innocent joke, and every one laughed; in fact, the laugh was bound to come out, and I have sometimes seen it, even in the funeral procession. It did not make me feel cross, either. I feel glad to notice, especially among young people, a surplus stock of cheerfulness, and what you might call innocent fun, that could not be held in check, nor corked up many hours without bubbling out. Around my old home there used to be innumerable soft-water springs bursting out at the base of the gravelly hills; and in some of my early experiments I tried stopping a spring when it came out where I did not want it. For a while I thought I had succeeded; but, sooner or later, out it came, washing every thing before it. It would not be stopped. Our United States of America needs more people bubbling over with good nature in just this way; and the real foundation for this cheerful good nature that can not be put out or upset is a faith in God. In him is no darkness at all.

My friend, have you ever had any experience in the way of loss or sickness, when it was hard work to be pleasant and good-natured? May be you think I do not know any thing about it. May be you think I am always full of cheerful enthusiasm—always glad and happy about something or other. If it were true, I should have no chance to sympathize with some of the rest of you. You may remember I have written on this matter before—yes, several times.

Some time ago I had something to say in regard to getting over spells of despondency and lack of interest in any thing the world had to offer. The editor of some agricultural paper in the West wrote me a postal card, asking me if, among my writings, I could recall any thing else on the same subject. He said that, if I had ever before written any thing of the sort, he wished I would get it for him. He said he would pay me almost any thing for the trouble of looking it up. The card was placed on my table, waiting till I got time to look over the Home Papers I have written. Other requests were laid down with the card. Sometimes I would get at it and answer these kind letters. Then I would read the card over again. Well, it has been getting before me in a kind of reproachful way for months back. When I get a glimpse of it, it seems to say, "Please, Mr. Root, haven't you time to say just a word for those who get tired of living? Don't scold us; don't tell us we ought to be ashamed of ourselves. We know all that. We want you to tell us the secret of being good-natured and joyous all the time, even in this terribly hot weather, when one must work, even if he does not feel like it. What shall we do, if we have not at all times that bright, assuring faith in the Father above that you seem to have? What shall we do when something (you may call it Satan) seems to say to us that nobody is obliged to live and toll any longer than he chooses?" Such thoughts often come up to me. Of course, I reply that there is nothing in this world that can sustain a man through all sorts of trials except a humble faith and reliance upon Christ Jesus the Savior of mankind.

A few weeks ago I had an experience that seemed strange to me. I did not understand at the time what it meant; but it occurred to me afterward, that there might have been a providence in it. For one thing it gave me glimpses of what others may, perhaps, be called upon to

endure in the way of temptation and trial. Perhaps I should call it mental suffering. As we grow older I think we are correct in saying that, as a rule, our digestion becomes impaired. Elderly people have to be more careful of their eating and drinking; and a deranged digestion, no doubt, has much to do with fits of despondency. I remember one hot day of going down through the creek bottom garden. Some way, that morning I did not feel very much enthusiasm for gardening. The crops were pretty fair, and prices were reasonably good; but things seemed to begetting rather monotonous. Even the large luscious strawberries did not revive my spirits. Several things had gone wrong. One man neglected something, and it threatened to cause a dead loss; another did the wrong thing; somebody else was very stupid. Very likely the small boys were throwing the peas at each other instead of putting them into the baskets. I made up my mind that I would just stop giving them employment, for they did not seem to appreciate the pains I was taking to furnish them something to do. As my thoughts ran on, one thing suggested another, and I got out of sorts. I was not happy, and even the thought of a wheel-ride in the afternoon did not make me feel happy. Before I knew it I was *exceedingly* miserable. I did not dare to say to myself that this world was not a pleasant one, because I knew I should be reflecting on the great God above. I prayed for grace from on high. It did not seem to come, however, just then. In fact, I had been struggling with similar feelings for several days, and this seemed to be the climax. I remember of thinking I was getting old, and perhaps I had better be getting rid of some of my cares and responsibilities. But what then? Very likely I should live a good many years; and I am sure I shall never enjoy life very much unless I can be busy. For instance, I remember of thinking—no, I did *not* think—the fact came up before me, but I did not accept it. It was to the effect that perhaps God did not propose to let me live very much longer, any way. I did not add, "The sooner the better," for I did not dare to do it. I have heard sick people give voice to such expressions, and in a sort of indifferent way at the same time. God forbid that I should ever be in a *hurry* to drop life's duties. I knew I was getting on dangerous ground. I knew, too, in general terms, where the trouble was. Within a few feet of me was a rank, vigorous growth of Country Gentleman sweet corn. The boys and men were far enough away so they could not overhear me while I knelt down in that rank-growing corn and told the Savior my troubles, and asked him to "create in me a clean heart, and renew a right spirit within me." I started for the corn; but somebody just then came in sight and called for me. I responded to the call, praying on the way. I proposed at the time to get by myself as speedily as I could, and ask to be lifted from that Slough of Despond by the only one in the whole universe who could do it. The dear Savior seems to have accepted the will for the deed: for a busy day followed the event I have recorded; and it was only at night that I recollected the dismal experience of the morning; and then I recalled the fact that God had taken the will for the deed, and that *unuttered* prayer had been answered—yes, several times. It was not answered, however, until I had determined to let *duty*, and not feeling and inclination, rule. And here is one grand secret of getting over such experiences, or, if you choose, such dismal spells of despondency—go right to work and *do your duty*. Do what you know you *ought to do*; be what you ought to be. If you can not do it with a smiling face,



come as near it as you can. Not *self* shall rule, but God and humanity.

In the fourth chapter of the book I have been quoting from, there is much said about love to humanity along with love to God; and the chapter closes with the words, "He that loveth God, loveth also his brethren." Spells of despondency come because you have been acting *selfishly*—because you have been for some little time thinking of self and *gratifying* self. Such a course will make you miserable as sure as darkness follows day. We can not live in this world, and enjoy life and happiness, without loving those around us. We *must* love humanity; yes, we must love *unlovable* humanity. We must love people even if they persist in doing stupid things. We must love people, even if they are selfish and greedy. We must love people, even if they are low in their desires and ways. We must love the sinner while we hate the sins we see, and we must ask God daily and *hourly* to give us grace to see the sins and the unlovable traits in our *own* hearts; for we shall never see them unless we ask God to show them to us. I *know*, friends, for I have had experience. Whenever the faults of others keep coming up before you constantly and continually, it is a proof that your heart is bad. Get out of it; don't make a fuss about every little thing. Remedy the mischief and the loss, if it can be remedied, and be *pleasant* about it. If it can *not* be remedied, go ahead and let it go. There is too much useless crying over spilled milk in this world. If you have any enemies, *love them*; "do good to them that hate you," and you will never find yourself whining around because God has given you a human life to live, and a good *long* life too.



#### ON THE WHEEL.

During my visit to the Experiment Station I particularly desired Prof. Green to let me see just what chemical fertilizers could do and were doing for farm crops; and then we drove to a particular part of the farm, with that end in view. First, there were plats of oats, or, perhaps I should say, strips clear through the field. The first strip was labeled "nothing"—that is, no fertilizer was applied. The next had a certain formula applied, consisting principally of nitrate of soda, sulphate of potash, and dissolved boneblack. At the next strip we have perhaps the same chemicals, but in different proportions; and after three or four of the fertilized strips there would be one with nothing at all again, and so on clear through the field. Not only were the chemicals used in different proportions, but there were strips containing heavy and light quantities of the chemicals. I was greatly pleased to see that the chemicals did usually, without question, on the hard clay soil of the Experiment Station, show that they possessed virtue. In almost every case there was a marked improvement where the fertilizer was used. Every little while we had a strip where barnyard manure was used in varying quantities. These experiments were continued with different variations through a very wide field. Now, there is no question but that these chemicals, in almost any combination, produce some increase of crop—at least on the Experiment Farm. Friend Green cautioned me, how-

ever, about jumping at conclusions. He said an increase of growth did not always necessarily mean an increase of grain. Again, the fertilized piece would sometimes make quite a show in advance of the unfertilized, during the fore part of the season; but later the unfertilized would catch up.

I was very anxious to know whether the result would not be just as favorable with the potash omitted, and we very soon came to a place where first one and then the other of the ingredients was left out, and the result seemed here at the Station much as on my own grounds at home. The omission of the sulphate of potash made little or no change in the result; and several times the omission of the nitrate of soda also seemed to make little or no difference, thus pointing pretty conclusively to the fact that the dissolved boneblack was really the valuable ingredient in the fertilizer—at least, for this class of clay soils; and I believe this boneblack constitutes a half or more of the principal fertilizers now in use.

Another clear fact exhibited itself on the plots of wheat. In some cases the wheat seemed to be almost equally good where no fertilizer was used at all; but come to look down close to the ground, and the fertilizer that seemed to have little or no effect on the *wheat* had produced a rank growth of orchard-grass and various kinds of grassy weeds. The evidence was very clear and plain; for where no fertilizer was used, this dense undergrowth was almost entirely wanting. Now, is it possible that the fertilizer would have produced some good result on the wheat had the ground been free from seeds of these various grasses? Is it not also possible that the chemical fertilizer may really injure a growth of grain by stimulating other plants among the grain—or, if you choose, making the grain crop more weedy?

I was still more interested in seeing the potato experiments, especially where we had a strip through the field where different quantities of potato-fertilizer were used. *Nothing*, showed very ordinary potatoes; 200 lbs. per acre gave a marked and decided advantage. In tops at least, over the unfertilized; 400 lbs. showed a still more luxuriant growth, and so on clear up to half a ton per acre. Why, the difference had made these potatoes start up so as to make almost a regular series of stairs.\* The more potato-manure used, the larger the growth of foliage. There is no mistake about this; and any farmer in the State of Ohio can go and look at it as I did. But we must not be hasty in our conclusions. A large growth of *tops* does not necessarily mean more potatoes, so friend Green told us. As a general thing it does indicate larger and finer tubers; but even if we succeed in getting larger and finer tubers, a serious question confronts us: Are the potatoes enough better to pay the cost of the fertilizer? With potatoes at a dollar a bushel, there is a chance, and a pretty good one, that the fertilizer may be a good investment; but with potatoes at 40 cts., or even less, the purchase of fertilizer is a risky business. If I am not wrong, the potato experiment showed, as did the experiments with oats and wheat, that the dissolved boneblack was the principal element needed in our soil. Dissolved Carolina rock, or almost any of the preparations of bone, are of value, but none of the salts of potash, nor

\*It may be well to explain that each of the test plots of potatoes consisted of five rows, and each row a different kind, so the effect of the fertilizer could be seen on more than one variety of potatoes. All of them responded to the potato-manure, and each responded about alike, so far as I recollect.

even the nitrate of soda, seems to be very much needed on our Ohio clay soils. Prof. Green, or somebody else, told me there was potash enough on our clay farms to meet all demands, even with constant cropping, for years to come; and this I have pretty well demonstrated on my own ground. Even hard-wood ashes do not seem to be of much account. On the low much lands of Ohio, however, where there is a great surplus of vegetable humus, the whole thing seems to be changed, and ashes may be applied in almost any quantity, with beneficial results.

I was greatly interested in looking at different kinds of new small fruits—gooseberries, currants, raspberries, etc. For the first time I saw some bushes of the Crandall currant loaded with fruit; but on our ground a clump of bushes now higher than my head, and perhaps six feet across, have never given a handful of fruit all together in the past five years. Some of the Crandall currants bear fruit and others do not. The Success Juneberry was also loaded with green berries; and we agreed that it was a "success" indeed. The birds are so fond of the fruit, when they discover it, that you will have to fight for your berries. We got just one picking from our bushes at home before the birds had a taste of them. They are large and luscious, and even more beautiful than huckleberries; and if we can fence off the birds, or have a plantation large enough so the birds can not consume all of them, they can surely be raised as cheaply as currants. There were many other new fruits that are advertised in the catalogs; but none that I remember of that our station is as yet ready to recommend.

Of course, they are testing the Gault raspberry. A dozen plants there looked much like mine at home, except that mine have made a much better growth. The Experiment Farm, you see, does not propose to manure things to the extent we do on our rich creek-bottom ground. Since that visit, friend Green and myself have paid Mr. Gault a visit. His first crop of Gault raspberries was wonderfully large and fine. Prof. Green suggests, however, that the late crop will probably depend a good deal on the thorough cultivation and care given by Mr. Gault; and, again, even though one succeeds in producing a big crop of superior raspberries all along through the fall, will people care so very much about them when they have peaches, pears, grapes, and fruits of all kinds in such abundance? This remains to be seen.

At this last visit at friend Gault's, when it was time for the train to leave I was not ready to go; so I took my chance of riding home on the wheel. When I was ready to start, it was 20 minutes after 4; but I made the 32 miles before dark, and greatly enjoyed it. By the way, these long trips on the wheel have given me an excellent opportunity of testing the sustaining power of different articles of diet; and I take pleasure in saying that I still find there is nothing equal to milk. Much has been said in regard to beefsteak. As a test, I paid 35 cts. for a good-sized porterhouse steak, and managed to consume it all before I started on my 30-mile trip. My strength gave out when only half way home; and I reinforced it with some crackers and cheese. At another time I made 30 miles easily with nothing but crackers and milk, with some nice apple-sauce made from Red Astrakhan apples. The apple-sauce helped to make up a "balanced ration." The crackers I prefer are what are termed "flakes." Give me plenty of these with sauce made of nice apples, rather tart, and a good-sized pitcher of milk, and I am good for 30 miles or more, whether it be morning, noon, or night.



#### RASPBERRIES—A LETTER FROM PROF. GRANNIS.

Being invited by my friend A. I. Root to give some of my experience in raspberry culture I send the following:

About eight years ago I bought 3000 Gregg plants, and set them on low, black, rich bottom land. The plants grew with great vigor, but bore no berries. After three years, vainly hoping and working, the piece was plowed up, and a humiliating failure recorded; but enough plants were saved to set a side-hill of poor soil—clay and gravel mixed—about an acre. When these were one year old they gave us a crop of about 15 bushels of large, beautiful berries. We had no trouble to sell them at 8 cts. per quart. The next year we sold about \$90 worth, and the third year \$130 worth from the one acre. By this time the neighbors had found that Gregg raspberries at 8 cts. per quart were about the cheapest fruit they could buy, and the demand kept ahead of the supply. In fact, the greatest trouble we had was to keep the peace, as there were four times as many buyers as berries. Being a schoolteacher, and not used to farming, I had made a failure of almost every thing, and was getting deeper in debt all the time. One hundred and thirty dollars from one acre opened my eyes, and I set two acres more, and began to experiment with other varieties. As the crop increased, the demand increased; and the number of the disappointed ones was so great that I vowed I would supply the home demand or perish in the attempt. That vow has been faithfully kept, and I now have 16 acres of raspberries set out, and all are doing well, with hardly a trace of anthracnose or any other disease. This year we picked and sold 40 bushels in one day, bringing us nearly \$100. On that day we sold 25 bushels at the field at \$2.50 a bushel, and the rest were sold in adjoining towns, without any trouble or worry.

I have always had the fear that I could not sell the berries if I raised them. One of my neighbors said I was ruining my farm, and he would prosecute any one who would set his fields to brambles. He is now harvesting about 40 acres of 48-cent wheat, and says no more against brambles.

The varieties that do me the most good are, first, Gregg for late, and Hilborn for early. The Tyler (or Souhegan) and Palmer are very much alike, growing low and sprawling, and are most affected by anthracnose; while the Hilborn, with me, is entirely free—a tall, vigorous grower, and enormous yielder of berries, next to the Gregg in firmness.

We picked our first picking from the three above-named early varieties on the same day, although a few Palmer and Tyler berries ripened a day or two first.

The great question, "Can farming be made to pay?" is settled for me in the affirmative; and the wolves that once howled at the door have taken their departure. I want to state here, that some of the courage and inspiration came to me from visiting the home of A. I. Root, and seeing the success he was having, and the good he was doing in making work for so many, and in furnishing fresh, health-giving fruit to Medina. May his prosperity continue.

I now have out one acre of strawberries, one acre of currants, one and a half of blackberries, and sixteen of raspberries. The work of caring for them is very light, and to me, very pleasant.



It is folly to be without fruit in its season, when it is so easily raised. W. R. GRANNIS.  
Lodi, O., July 23.

[Perhaps it is no more than fair to inform our readers that when the article above was written, friend Grannis had not seen our last issue. This would account for some trifling repetition.—Ed.]



#### BEE SWAX DECLINED.

Until further notice we will pay 22 cents cash, or 25 cts. in trade, for average beeswax delivered here. This is a reduction of 1c a lb. from last quotation. Be sure you put your name and address in shipments of wax sent to us, and advise us by mail at same time.

#### CARLOAD SHIPMENTS.

We shipped a carload of goods last week to Colorado, consisting mostly of honey-cases and cantaloupe-crates, and some foundation and sections. There seems to be a fairly good crop of honey in that State this year, judging from a few reports received, and the demand for goods in that section.

#### HONEY-CASES.

While we expected to be shut down during July and August, we have been obliged to keep going on full time, making up goods required on orders. We have made many thousand shipping-cases for comb honey; and, judging from the demand on us for these, there must not only be a pretty fair crop of honey, but the cases we furnish must meet the beekeepers' needs in style, quality, and price. See page 30 of our catalog for full description and prices.



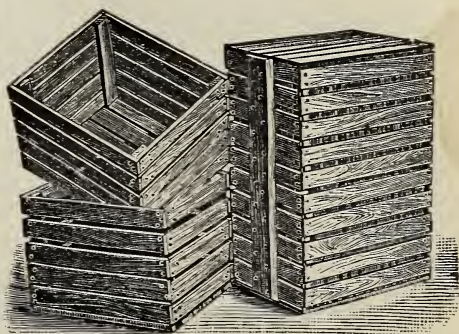
Choice white comb, 1-lb. sections, 16c per lb. in 100-lb. lots. Choice extracted in 60 lb. cans, 9c per lb.; 2 cans in a case, 8½c; lots of 2 cases or more, 8c. White-sage honey, crop of 1893, ¾ c per lb. less. Most of the comb and extracted we are able to secure is from basswood, as there was little gathered from white clover this year.

#### HONEY-PACKAGES.

Demand for new honey is opening up quite briskly, and we have been shipping comb about as fast as received, and we are sold ahead on extracted. We handle extracted only in 60-lb. cans; have had some offers in kegs and barrels, which we could not accept on account of the package. I believe if all honey-dealers once learned the comfort and convenience of handling honey in 60-lb. tins they would not tolerate kegs and barrels. In so far as handling is concerned, there is no doubt that kegs and barrels will roll, and thus move about more easily than the tins boxed. But it is the leakage from kegs and barrels which makes us constant annoyance and loss. We recently received a sample half-barrel of old honey. It arrived without leakage, because candied solid. We set the barrel in our tub of water to heat and liquefy, not noticing that some of the chimies were broken. Before we discovered it, and before the honey was fully melted, over ten per cent had leaked out into the water, and we had a swarm of bees after the sweets. We become more opposed every year, by some such experience, to handling honey in kegs. It is true, they cost a little less than cans; but I will venture to say that more

honey is lost in leakage to pay the difference. We were chosen umpire in several cases of dissatisfaction last season, where honey had been shipped in barrels, and had reached the consignee more than half lost by leakage. In one case there was only 15 lbs. of honey left in a large barrel. It is well enough to put low grades of honey, which are used in manufactures, into barrels if they are well coopered; but to us it seems foolish to put choice extracted honey up in kegs or barrels when the 60-lb. cans are so much superior. Some one says, "It's all very well for you to run down kegs and barrels, and advocate cans, when you sell the latter. It is simply self interest to do so." We say emphatically, it is *not* self-interest, but our honest convictions, regardless of the consideration whether we do or do not sell cans. For that matter, we sell barrels and kegs as well, to those who will have them; and we have as much margin on their sale, so that, whether we sell this or that package, has no effect whatever on our convictions formed by years of experience with different kinds of packages. The experience of others may differ from ours, and we should be glad to get the views of those who have handled honey in considerable quantities as to the best package to use.

#### BUSHEL BOXES.



The above cut shows our popular *all-slatted bushel box*. We have two other styles; one has slatted bottom and sides with solid ends in three pieces called the *slatted bushel box*. The other has solid ends and close bottom and sides, and is bound with galvanized iron and called the *galvanized bound box*. These boxes were devised by T. B. Terry for handling potatoes, for which purpose nothing could be handier. The potatoes are picked up into the boxes in the field and left in them till sold. Other crops, such as cucumbers, tomatoes, and apples are being handled in these same boxes. They are of such a size that two go crosswise in an ordinary wagon-box. Outside measure is 14½ x 16½ x 12½ deep, and they hold a bushel of potatoes level full so they can be piled one upon another. The above cut shows two *all-slatted* boxes nailed up, and a bundle of 15 alongside; 13 of the 15 are in the flat, packed inside the other two, and nails of the proper kinds are included. The *slatted* and *galvanized bound* boxes are put up in the same way, except there are only 12 in a package instead of 15. Each package weighs about 85 to 90 lbs.

#### PRICE LIST.

All-slatted bushel box, per crate of 15..... \$1 50  
Slatted bushel box, per crate of 12..... 1 50  
Galvanized bound bushel box, per crate of 12..... 2 10

In lots of ten crates, 5 per cent discount will be deducted. Price each, nailed, 15, 18, and 22 cents, respectively. A 20-page pamphlet called *Handling Farm Produce*, telling all about these boxes, mailed free on application.

**FOR SALE,  
66 COLONIES  
OF BEES,**

Address

In lots to suit, in good condition (Italians and hybrids) also lot of Dovetailed hives, wax and honey extractors, etc., complete inside furniture for all hives. Langstroth frames.  
BENJ. B. GRISWOLD, Jr.,  
Catonsville, Balt. Co., Md.

## Queens! Queens!

Now ready by return mail.

Bred in full colonies from the best honey-gathering strains in the country. All queens warranted purely mated, and safe arrival guaranteed. I have three distinct strains—golden yellow and dark leather-colored Italians, also Albinoes.

Tested, each.....	\$1.50
Tested, per ½ doz.....	7.50
Warranted, each.....	.75
Warranted, per ½ doz.....	4.00
Warranted, per doz.....	7.50

Send for 44-page descriptive catalogue.

W. W. CARY, Colrain, Mass.

## 5-Banded Untested Italian Queens

For the balance of the season at 50 cts.; tested, \$1.00; breeding-queens, *the very best*, \$1.50. These are Doolittle's strain, and are golden beauties. Fine tested, from imported Italian mothers, 75c. Safe delivery. Money-order office, Decatur.

Cleveland Bros., Stamper, Newton Co., Miss.

Will you please mention GLEANINGS?

**Imported Carniolans**, bred in 1893, \$5 each; tested 1894 Carniolans in June, \$2; bred from imported queens producing only gray bees. Untested, May, \$1. Foreign orders, \$6, \$3, and \$2. Safe arrival at any postoffice in the world.

MRS. FRANK BENTON, Charlton Heights, Md.

## Bees and Queens.

I am now prepared to fill all orders on short notice at the following low prices:

Untested queen.....	\$ 75
6 untested.....	4 00
1 1-frame nucleus.....	1 00
1 3-frame nucleus.....	2 50
Bees by the pound.....	75
1 to 5 colonies.....	6 00

Queens wanted with nucleus, add price.

E. A. HARRIS, No. Petersburg, Ross Co., N. Y.

## Tested Queens,

Raised last fall from my choice Italian stock, yellow and unsurpassed workers,

75 cts.

Ready to ship now. Hybrids, 25 cts.

J. A. GREEN, Ottawa, Ill.

## World's Fair Medal

Awarded my *Foundation*. Send for *free samples*. Dealers, write for wholesale prices. Root's new *Polished Sections* and other goods at his prices. *Free Illustrated Price List* of every thing needed in the apiary. **M. H. Hunt.**

Bell Branch, Mich.

**TESTED ITALIAN QUEENS**, \$1.00 each; tested, \$1.50; untested, 65 cts. Two-frame nucleus, with tested queen, \$2.00; with untested queen, \$1.50. Queens ready April 1.

Stewart & Cooper, Quebec, Tenn.

## TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. **PAGE & KEITH,** New London, Wis.

# BBB'S!

If you keep **BEES**, subscribe for the *Progressive Bee-keeper*, a journal devoted to Bees, Honey, and kindred industries. **50 cts. per year.** Sample copy,

also a beautifully illustrated catalogue of Bee-keepers' supplies, **FREE.** Address **LEAHY MFG. CO., HIGGINSVILLE, MO.**

## Woodcliff A No. 1.

In order to introduce my strain of beautiful yellow **Woodcliff Queens**, which are bred from an imported leather-colored Italian crossed with the best 5-banded stock I can procure by *Doolittle* method, I will sell *guaranteed* purely mated untested queens at 75 cts. each. As I produce large quantities of comb honey, I breed principally for large honey-gatherers. Apiaries near Philadelphia. Address

WM. A. SELSER, Wyncote, Pa.

In responding to this advertisement mention GLEANINGS.

## Golden Italian Queens.

½ doz. untested queens.....	\$4 00
1 doz. untested queens.....	8 00
Five queens for breeding purposes 3 00	

Sample of bees upon application. I can please you. Send a trial order.

J. F. MICHAEL,

German, Darke Co., O.

In responding to this advertisement mention GLEANINGS.

## OTTUMWA BEE-HIVE FACTORY.

Bee-keepers, look to your interests. Every thing in the line of bee-supplies constantly on hand. Price list free. **GREGORY BROS. & SON,** 1-230 Ottumwa, Ia. South side.

## Warranted Queens, 75c.

Five-band strain, bred for *business*, six for \$3.25; dozen for \$6.00. See former *ads.*, and send for circular. Safe arrival and satisfaction *guaranteed*. **J. B. CASE, Port Orange, Fla.**

In responding to this advertisement mention GLEANINGS.

## STRONG, FULL COLONIES

of Pure Italian Bees, in Root's new Dovetailed hive, after June 1, only \$4.00 each.

N. A. KNAPP, Rochester, Lorain Co., O.

## PATENT WIRED COMB FOUNDATION

Has No Sag in Brood-frames.

*Thin Flat-Bottom Foundation*

Has no Fishbone in the Surplus Honey.

Being the cleanest, it is usually worked the quickest of any foundation made.

**J. VAN DEUSEN & SONS,**

12tfdb Sole Manufacturers, Sprout Brook, Montgomery Co., N. Y.

In responding to this advertisement mention GLEANINGS.

## SPECIAL OFFER FOR THE NEXT 60 DAYS.

Untested 5-banded queens, 50 cts. each; six, \$3.00; warranted, each, 60 cts.; six, \$3.50; tested, 75 cts. Reference, A. I. Root.

Leininger Bros., Ft. Jennings, O.

In responding to this advertisement mention GLEANINGS.

## MUTH'S HONEY EXTRACTOR.

Square Glass Honey-Jars, Tin Buckets, Bee-hives, Honey Sections, Etc., Etc. Perfection Cold-blast Smokers.

APPLY TO

**CHAS. F. MUTH & SON, Cincinnati, O.**

P. S.—Send 10-ct. stamp for "Practical Hints to Bee-keepers."